products finishing

FEBRUARY
1960

How to Anodize and Color Aluminum . Page 24

Table of Contents Page 5

Cincinnati CLEANING AND FINISHING SYSTEM

installed by

BRUNING

produces

- Savings in Material Handling
- Improved Product Quality
- Better Working Conditions

Cincinnati Cleaning & Finishing Machinery is used in the production of a wide range of Bruning equipment for drafting and copying, earning the user's commendation for savings, improved product and working conditions.

The monorail cleaning machine shown here processes frame parts and cabinets of copying machines prior to finishing; it is also used to clean machined parts between operations. The cleaning machine is part of a complete Cincinnati system which also includes: dry-off oven, down-draft spray booth, paint bake oven, monorail conveyor and air make-up unit.

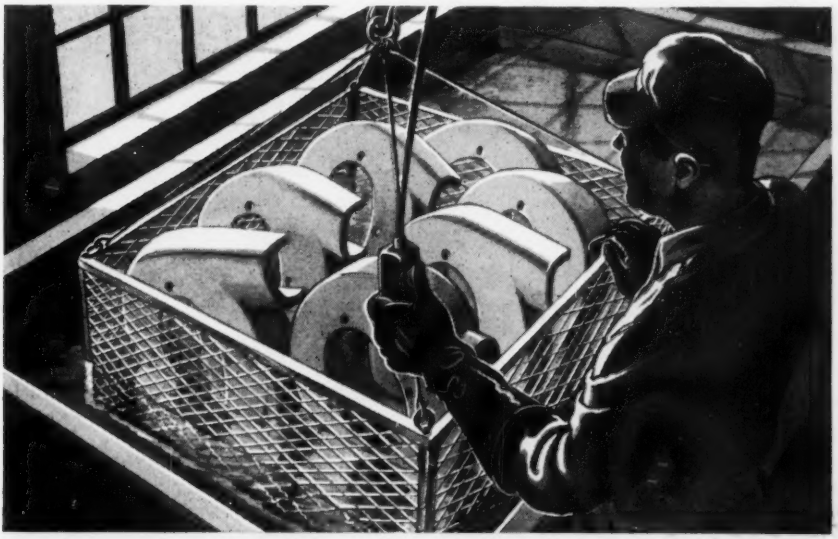
Use the engineering and experimental facilities of Cincinnati Cleaning to get more economical cleaning and finishing . . . with better results . . . in your plant. For details, write: Cincinnati Cleaning & Finishing Machinery Co., 2021 Hageman St., Cincinnati 41, Ohio.

For more data circle 301 on Postpaid Card

To prevent corrosion and anchor paint on aluminum

ask Oakite

OVER 50 YEARS CLEANING EXPERIENCE • OVER 250 SERVICE MEN • OVER 160 MATERIALS



Protect aluminum at lowest unit cost with CHROMICOAT conversion coating

Oakite CHROMICOAT is an economy any way you look at it: on the basis of price alone ... on solution make-up and "mileage" ... on the way it blocks corrosion and forms a perfect anchor for paint to keep your customers sold and satisfied.

This is a conversion coating you can depend on. Oakite ChromiCoat protects for hundreds of hours under the ordeal of salt-spray tests ... and surpasses MIL-C-5541 specs *several times over!*

And the Oakite process is simplicity itself. No control problem. A thin, golden, uniform coating every time.

ChromiCoat is just one of a line of more than 30 Oakite materials designed especially for aluminum. There are etch and non-etch cleaners ... barrel finishing compounds ... safe paint strippers ... forming lubricants.

For more information, ask your local Oakite man or write to Oakite Products, Inc., 20 Rector Street, New York 6, N. Y.

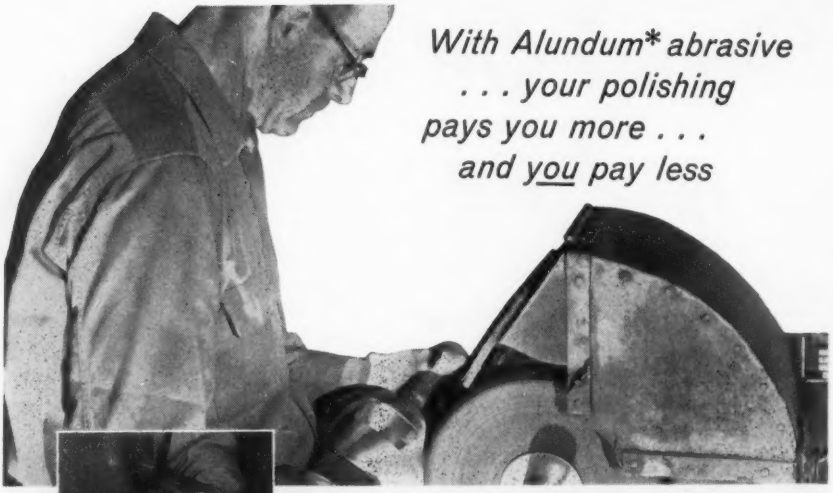
it PAYS to ask Oakite

OAKITE

over 50 Est. 1909 SCIENCE

years' leadership in industrial cleaning

For more data circle 304 on Postpaid Card



With Alundum abrasive . . . your polishing pays you more . . . and you pay less*

A stainless steel floating ball, chief feature of a leading valve manufacturer's product, requires a high polish for its high efficiency. ALUNDUM abrasive is the leading manufacturer's selection for this important polishing job.

Setting up your polishing wheels with ALUNDUM abrasive is easy and profitable. This grain's high capillarity speeds and strengthens the wetting process with glue or cement — making your wheels last longer and polish better.

Where finish is essential to product appeal or product efficiency, Norton ALUNDUM abrasives are the first choice in many plants. For extra long service life the blocky-shaped E_1 ALUNDUM B abrasive in grit sizes 14 to 240 is widely popular. For faster cutting action E_{132} ALUNDUM S abrasive (grit sizes 14 to 90) or E_{138} ALUNDUM R (grit sizes 100 to 240) are preferred.

Uniform grain shapes and sizings of these popular Norton abrasives assure fast cutting action, with no oversize grains to mar the finish, no undersize grains to lag on the job. And their high capillarity provides the easy absorption of glue or cement that means longer lasting, better performing set-up wheels.

The booklet *"Setting Up Metal Polishing Wheels and Belts"* tells you about the various types of ALUNDUM abrasives . . . or their uses when applied to canvas, leather or wooden wheels . . . and the best means of preparing wheels. Ask your Norton Distributor for it. Or write to NORTON COMPANY, General Offices, Worcester 6, Massachusetts. Plants and Distributors around the world.

*Trade-Mark Reg. U. S. Pat. Off. and foreign countries

NORTON
ABRASIVES

G-384

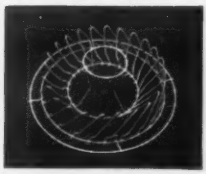
75 years of . . . Making better products . . . to make your products better

NORTON PRODUCTS: Abrasives • Grinding Wheels • Machine Tools • Refractories • Electro-Chemicals

BEHR-MANNING DIVISION: Coated Abrasives • Sharpening Stones • Pressure-Sensitive Tapes

For more data circle 305 on Postpaid Card

REYNOSOL* *SOLVED THESE PROBLEMS*



There's a special Reynosol formulation for your coating problem. And if it's steel you're coating you'll be interested in the extra benefits that only Reynosol can offer you.

What are they? Greater resistance to temperature . . . truest color control . . . greater tensile strength . . . lower total cost.

Reynosol coatings are as functional as they are decorative . . . as economical as they are reliable. Let Reynolds Chemical creative staff tackle your finishing problem — show you how Reynosol can finish your problem! They'll come up with exactly the answer — and the price — you've been hoping for. Write or phone today for full information.

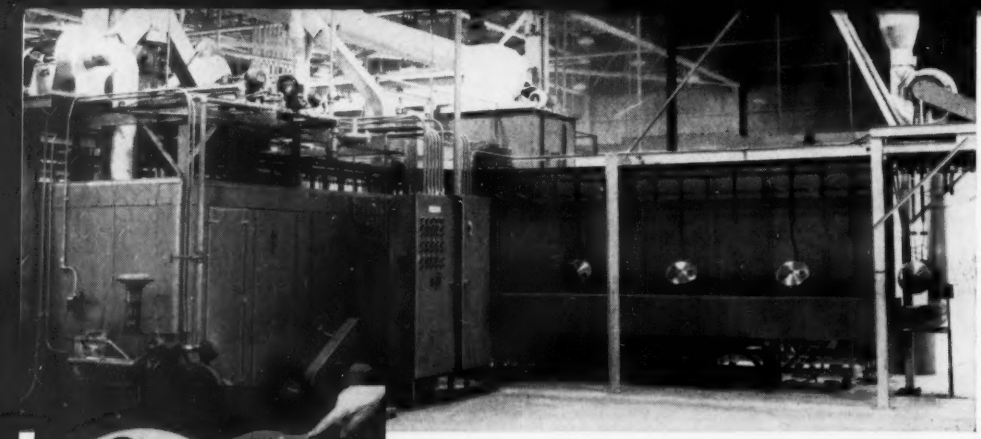
* Reg. Trademark

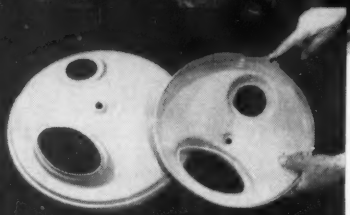
REYNOLDS CHEMICAL PRODUCTS COMPANY

Whitmore Lake, Michigan • Phone: HIckory 9-9361

DIVISION OF STUBNITZ GREENE CORP.

For more data circle 306 on Postpaid Card





JOB REPORT

PRODUCT:

Stamped steel covers and structural components for high-voltage Westinghouse transformers. Coated with CORVEL cellulosic to provide 12000 volts insulation, a gasketless seal, and a durable, decorative weather proof surface.

PROCESS:

Preheat parts, dip in "fluidized" bed of fine, dry plastic powder, and postheat. Oven temperatures held to plus or minus 5°F. Licensed fluidized bed process deposits tough, corrosion-resistant coating of uniform thickness on all surfaces, regardless of part configuration.

PRODUCTION:

Uninterrupted production of finish-coated parts from conveyorized installation of preheating ovens, dipping tanks, excess powder blow-off and collection units, and postheating ovens—custom engineered, fabricated and erected by MOCO for economical operation by Westinghouse Electric Corporation.

*Trademark of The Polymer Corporation for finishing materials.

MOCO, the Polymer Corporation and Westinghouse Team-up to Beat the Elements!

Teaming up to take advantage of the unique new fluidized bed coating process, Michigan Oven Company, The Polymer Corporation and Westinghouse Electric Corporation engineers recently completed target-date installation of a system for applying CORVEL* fusion bond coatings at a modern new Westinghouse manufacturing center.

Designed to apply a protective coating on transformer covers, the new system demanded accurate timing and temperature control of parts during pre-heating and post-heating, complete scavenging of excess powder (for general safety reasons as well as economic ones), and continuous movement of parts in a specified path for uniform dip-coating.

Experienced MOCO design and process engineers provided an integrated system of ducts, blowers, conveyors, and heating and control equipment completely meeting Westinghouse specifications for quantity, quality and cost.

MOCO problem-solvers will welcome the opportunity to team their talents with yours. Write for the name of our representative nearest you.

FREE—Send for your MOCO bulletin showing typical finishing system applications and specifications; no cost or obligation, of course.

MICHIGAN OVEN COMPANY

MOCO

FINISHING EQUIPMENT DEPT.
423 BRAINARD
DETROIT 1, MICHIGAN

Washing Machines • Bonderizing Units • Dry-off Ovens
Dip Tanks • Spray Booths • Flo-coaters • Finishing Ovens • Conveyors

For more data circle 307 on Postpaid Card

M. L. FORNEY, *Publisher*
RICHARD S. KLINE, *General Manager*
EZRA A. BLOUNT, *Editor*
GERARD H. POLL, JR., *Associate Editor*
H. LEROY BEAVER, DR. NELSON F. MURPHY } *Consulting and Contributing Editors*
NORMAN S. ROGERS, *Art Editor*
K. M. GETTELMAN, *Circulation Manager*

products finishing

Vol. 24 No. 5 February, 1960

FEATURES IN THIS ISSUE:

23 THIS ALUMINUM BUSINESS • *Editorial*

24 TECHNIQUES FOR COLORING ANODIZED ALUMINUM • *By R. V. Vanden Berg*

35 LONGER LIFE FOR COATED ABRASIVES

36 A REVIEW OF SOLVENTLESS COATING WITH PLASTICS • *By Hans K. Neumann*

40 NEW FINISHING SYSTEM AUTOMATICALLY PAINTS AUTOMOBILE FRAMES

44 VINYL PROTECTION FOR RAILROAD CARS

46 PLASTIC DUCT CARRIES HOT, CORROSIVE FUMES

50 PRETREATMENT MAKES WELDING GALVANIZED PARTS EASY

50 SMOOTHING OFF CLOCK PARTS

52 POLYSULFIDE-EPOXY COATINGS SOLVE ABRASION AND CORROSION PROBLEM ON HOPPER CARS

6 ADVERTISING REPRESENTATIVES

60 PAINT FINISHING ARTICLE COMPETITION

DEPARTMENTS:

56 METALS MEMOS

62 SPOTLIGHTING FINISHING PROGRESS • *By Dr. Nelson F. Murphy*

62 —BRIGHT NICKEL BATHS

68 FINISHING CLINIC

72 NEW EQUIPMENT, MATERIALS, PROCESSES

162 FREE LITERATURE

172 CLASSIFIED ADVERTISING: POSITIONS AVAILABLE; USED MACHINERY; PROFESSIONAL CARDS; SERVICES

173 NEWS OF THE FINISHING INDUSTRY

189 MEETINGS OF INTEREST TO FINISHERS

190 THE FINISHING TOUCH

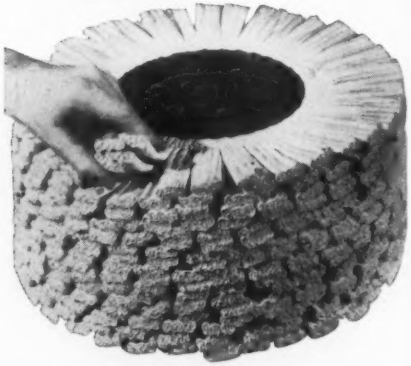
192 FEBRUARY ADVERTISERS' INDEX

Member
BPA
Metal Finishing Suppliers' Association, Inc.

contents

Published monthly with two issues in March and copyrighted (1960) by Gardner Publications, Inc., 431 Main St., Cincinnati, Ohio. Printed in U.S.A.

FASTER CUTTING action!
LONGER WEARING qualities!
REMARKABLY smoother finish!
UNEQUALLED FLEXIBILITY in a sisal buff!



Finishing Room Superintendents Specify the Churchill 20-RD Cord Sisal Finger-Buff* . . .

because they know only the Churchill 20-RD produces a uniform high quality of finish . . .

PLUS

Churchill 20-RD Cord Sisal Finger-Buffs* produce exceptional results on stainless. They are competitively priced and made in all sizes from 3" to 21" diameters.

Write for complete information.

**The trade's attention is called to United States Patent No. 2,724,937, issued Nov. 29, 1955, to George R. Churchill relating to the cloth-covered cord sisal buffing wheel exclusively manufactured by Geo. R. Churchill Co., Inc. of Hingham, Mass. and marketed under its trade-mark, "Finger-Buffs", Reg. U. S. Pat. Off.*

REPRESENTATIVES IN PRINCIPAL CITIES

Geo. R. Churchill Co., Inc.

DEPT. PF-20, HINGHAM, MASS.

For more data circle 308 on Postpaid Card

products finishing

advertising representatives

Duncan W. Barton, 60 East 42nd St., New York 17, N. Y., Murray Hill 7-7390. Eastern Pennsylvania, central New York State, New Jersey, Maryland, Delaware, Washington, D. C., Long Island, Brooklyn, New York City, Staten Island.

Granville M. Fillmore, *Vice President,* 60 East 42nd St., New York 17, N. Y., Murray Hill 7-7390. Eastern New York State, Connecticut, Massachusetts, Rhode Island, Vermont, New Hampshire, Maine.

George E. Hay, 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Western Pennsylvania, western New York, Ohio, Kentucky, southern Indiana.

John M. Krings, *Vice President,* Room 211-A, 540 N. Michigan Ave., Chicago 11, Ill., DElaware 7-5441. Western Michigan, Illinois, Wisconsin, Iowa, Minnesota, the Dakotas, northern Indiana.

Jeryl L. Marlatt, 1051 Brooklawn Rd., Birmingham, Michigan, MIdwest 6-5935. Eastern Michigan, northwestern Ohio.

Norman S. Rogers, 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Central Indiana.

Gene J. Schwarber, *Advertising Manager,* 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Missouri, Kansas.

The Robert W. Walker Company, 730 S. Western Ave., Los Angeles 5, Calif., DUnkirk 7-4388; 57 Post St., San Francisco 4, Calif., SUtter 1-5568. California, Oregon, Washington.

★ ★ ★

Circulation over 22,500—largest in the finishing field

GRIND POLISH BUFF DEBURR

with a

Hammond ROTARY AUTOMATIC

Model "K" Hammond Automatic Finishing Machines are made in 34", 46" and 62" table sizes. These models are either continuous or for indexing at 150 to 1700 indexes per hour. Head styles include floating, non-floating with 3 H.P. to 20 H.P. range. Also available are attachments for converting heads from buffing to abrasive belt polishing. The Hammond Model "K" will speed up your grinding, polishing, buffing, brushing and de-burring operations. Send us samples and learn how much you can speed them up.

SEND SAMPLES

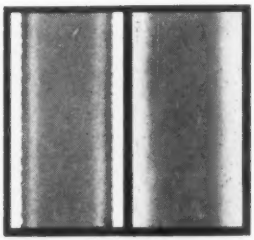
and we'll show you how much you can speed production and cut costs.

Hammond Machinery Builders INC.

1622 DOUGLAS AVENUE KALAMAZOO, MICHIGAN

For more data circle 309 on Postpaid Card

SPEE-FLO



CONVENTIONAL H-GUN

Two spray patterns compare the H-GUN and conventional airless. Each is same material at equal pressures.

For the first time

***airless** spray -- without heat -- will*

produce a quality finish!

The revolutionary, new, H-GUN*, combined with Spee-Flo HydraAirless 20 systems, will produce a spray pattern equal to the best air-atomized gun—and without overspray. The H-GUN sweeps away the limitations of airless. Tests with every conceivable material show amazing results for quality applications.

For the first time it is possible to apply a CONTROLLED film thickness from ½ to 3 mils or more with the HydraAirless 20 and the new H-GUN. For the first time you'll see a true atomization pattern with feathered edges that permit overlapping without runs, sags, or uneven distribution. For the first time you can spray surfaces of odd configuration, even into corners, with airless. All of this with an unheated system.

Since its introduction, airless spraying has had limited applications; limited by an atomization barrier that no amount of hydraulic pressure could completely overcome. It was best suited for use on flat surfaces where quality control was not critical. All reputable manufacturers of airless equipment stressed these limitations.

Spee-Flo has now overcome these limitations. HydraAirless 20 systems with the H-GUN will produce a quality of application suitable for almost any finished product. The H-GUN is so versatile that an unheated system will now produce the results formerly requiring a heated system. The HydraAirless 20 may also be combined with the Spee-Flo heater for improved viscosity control, faster drying, and for spraying materials of higher viscosities that otherwise could not be sprayed by the airless method.

The H-GUN has been developed by Spee-Flo research. It is offered exclusively with the Spee-Flo HydraAirless systems. If you are considering the advantages of airless, or have tried airless before without success, you cannot afford to miss seeing the HydraAirless 20. Get the advantages of airless—material savings and no overspray—and with the Spee-Flo systems, get the quality your operation demands. An on-the-job demonstration will be arranged at your request.

SPEE-FLO CREATES A NEW ERA FOR AIRLESS.

breaks the atomization barrier

compare

Spee-Flo HydraAirless 20/H GUN

with other airless systems

Brand A, B, C, D, unheated non-circulating systems	HydraAirless 20/H-GUN
1. Atomization quality is limited. Only rough applications considered successful.	1. Quality applications with unheated airless with almost any sprayable material.
2. Airless fan has equal thickness from top to bottom. No feathered edge. Overlapping difficult and runs and sags common.	2. Spee-Flo H-GUN produces a spray pattern equal to best air-atomized gun without overspray. Proper feathering permits normal overlap without runs and sags.
3. Unheated airless systems tend to flood work due to extremely high pressures necessary for operation.	3. Spee-Flo H-GUN applies the fan without flooding. Operator is not "chasing" the gun. He controls it.
4. Require an average of 1500-2500 psi to atomize conventional finishes.	4. Requires an average of only ½ to ⅔ this pressure for equal or superior atomization quality.
5. Extreme high pressures place load stress on equipment. Result in expensive nozzle wear.	5. HydraAirless "loafs" at ⅓ less pressure. Less than half the nozzle wear with true atomization of the Spee-Flo H-GUN.
6. Incomplete atomization produces pig tails.	6. Complete atomization eliminates pig tails on any sprayable material.
Brand E, and F, heated systems	**HydraAirless 20/H-GUN, heated systems**
1. Heated airless systems provide better quality than unheated, but most of the above problems, and limited gun control, remain.	1. Spee-Flo HydraAirless 20/H-GUN is also offered in the heated system. With the heated system for viscosity control, there is no equal in quality of application. Drying time is greatly accelerated with heat.

*Patent Pending

The **SPEE-FLO** *Company*

6614 Harrisburg Blvd. • Houston 11, Texas

For more data circle 310 on Postpaid Card

From **H-VW-M** Research:

2 NEW NICKEL-PLATING PROCESSES

Here's good news...two new nickel processes...and more to come!

PERMALUME Semi-Bright Process

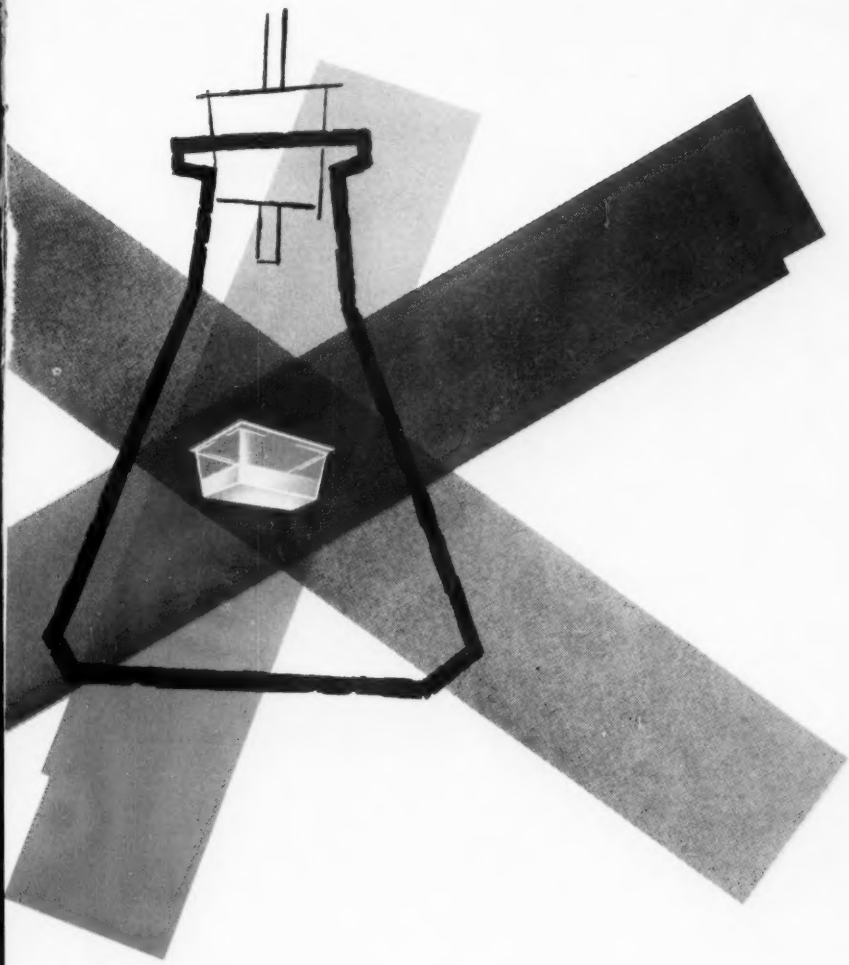
This fast-plating air-agitated bath is ideal for today's duplex-coating systems. *Permalume*, the simplest bath to operate, will not form harmful reduction or hydrolysis products. It is easy to analyze. There is no breakdown in brightness. It's the *only* semi-bright bath that can be continuously filtered through carbon without loss of addition agents! Semi-bright *Permalume* deposits are sulfur-free and are used in duplex systems with a bright top coat of *Levelume*.

SUPERLUME Bright Nickel Process

No brighter finish – in one bath. With its remarkable leveling and scratch hiding action, *Superlume* produces a smooth, super-bright quality finish, and does it with a *single* bath. *Superlume* costs a little more, but pays off in smooth-as-glass quality *plus* impressive time savings. It beats *any* other bath for ductility with leveling at high current density! For detailed information on the advantages of these new H-VW-M processes, write today to:

Hanson-Van Winkle-Munning Company, Matawan, New Jersey.
Offices in Principal Cities.
Alert Supply Company is H-VW-M in the West. Los Angeles • San Francisco

For more data circle 311 on Postpaid Card



H-VW-M

Progress in metalfinishing through advanced processes • equipment

Give ear to the saga of prosperous Dan,
A plater who switched to the DARCO® Plan.
He's ended his troubles
with blisters and bubbles
And he ships home his profits by truck and by van.

Keep your plating bath clean . . . without shutting down . . . by "pre-coat" filtering with DARCO activated carbon once a month. Twice a year, give the bath a complete DARCO purge. You'll save anode metal, reduce rejects and get consistently better plating. Order from your Distributor . . . and write for a copy of "Modern Activated Carbon Practice", which describes the DARCO Plan.

DARCO IS MADE BY

CHEMICALS DIVISION

ATLAS POWDER COMPANY

WILMINGTON 99, DELAWARE

In Canada: **Atlas Powder Company, Canada, Ltd. Brantford, Ontario, Canada**

DARCO

REG. U. S. PAT. OFF.

For more data circle 312 on Postpaid Card

everything it touches turns to

GOLD

Old King Midas would have flipped his crown to see how ready-mixed gold transforms ordinary surfaces into golden richness. SEA-LAC ready-mixed gold comes in all shades of bronze powder — already mixed in the vehicle. Spray or dip; can be baked or air-dried. For use on aluminum, steel or zinc castings, polystyrene, acrylic and other plastics. Good package stability. In clear too — if you wish to do your own mixing. Available in smooth finish or one coat hammer effect.

SEA-LAC

READY MIXED GOLD

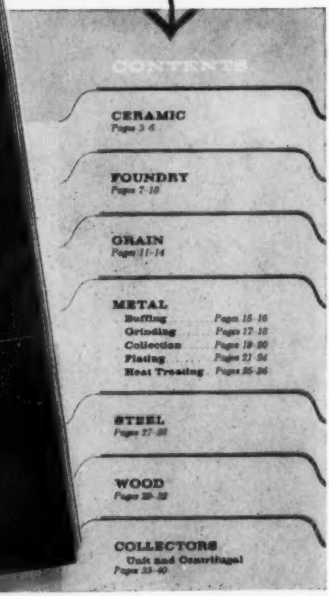
DURALAC CHEMICAL CORPORATION, 84 LISTER AVENUE, NEWARK, N. J.

For more data circle 313 on Postpaid Card

NEW KIRK & BLUM

Dust & Fume Control CATALOG

52 pages showing 60 different installations in major industries



See how Kirk & Blum engineers the best suited dust and fume control system for each particular application.

See how Kirk & Blum provides one source for the complete operating system—design, fabrication, installation—*one* undivided responsibility. Write for your copy today.

THE KIRK & BLUM MANUFACTURING CO. 3116 Forrer St., Cincinnati 9, Ohio

For more data circle 314 on Postpaid Card

Yes, there's an answer to corrosion, after all

the udylite

Bi/NICKEL® PROCESS

The combination nickel that's making plating history

only from Bi/NICKEL *do you get all these benefits:*

1 SUPERB CORROSION RESISTANCE

Under actual exposure to highly corrosive atmospheres as well as accelerated CASS and Corrodkote tests Bi/NICKEL has proven its superiority over other bright nickel coatings.

2 THE MOST BEAUTIFUL FINISH

Color and brilliance obtained with Bi/NICKEL incorporating Udylite Bright Nickel, such as the Incomparable 66 and other Udylite nickel processes, cannot be matched.

3 ADHESION PROBLEMS LICKED

Bi/NICKEL offers a solution to adhesion problems previously considered inherent in combination nickel processes. Chrome finishes "take" to Bi/NICKEL with remarkable facility.

4 FULL RANGE OF COMBINATIONS

There is a version of Udylite's Bi/NICKEL which is adaptable to your product and problem whatever the demands of basis metal or the limitations of your already installed equipment.

5 INCREASED PRODUCT POTENTIAL

Here in Bi/NICKEL is a process that will immeasurably enhance the real value of the products to which it's applied. Longer life of usefulness and beauty can be expected from a Bi/NICKEL-Chromium finish. It gives you a real talking point when it comes to sales.

6 ANSWERS CUSTOMER COMPLAINTS

Bi/NICKEL is a step in the right direction toward solution of corrosion problems that have harassed automotive manufacturers and all others where corrosion has been a factor in a product's "life expectancy".

Discover TODAY how the Udylite Bi/NICKEL process is just what you've been looking for to meet and beat your corrosion problem.

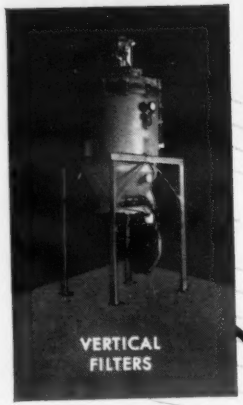
you get Bi/NICKEL *only from*

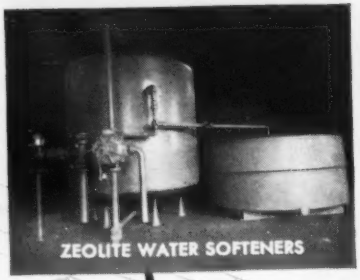
the udylite corporation

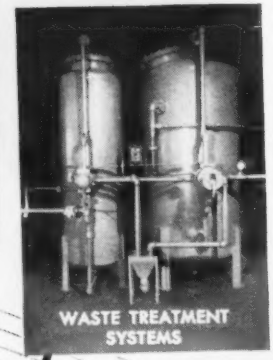
DETROIT 11, MICHIGAN
WORLD'S LARGEST PLATING SUPPLIER

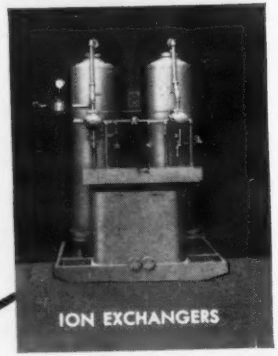
For more data circle 315 on Postpaid Card

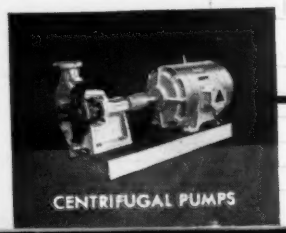
INDUSTRIAL ENGINEERED EQUIPMENT for the PLATING INDUSTRY

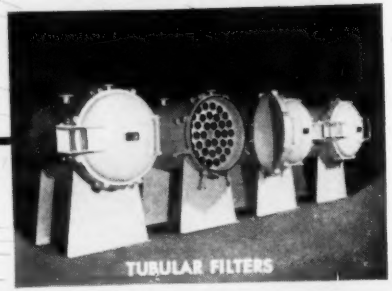

VERTICAL FILTERS

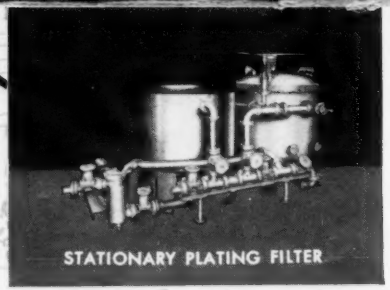

ZEOLITE WATER SOFTENERS


WASTE TREATMENT SYSTEMS


ION EXCHANGERS


CENTRIFUGAL PUMPS


TUBULAR FILTERS



▪ COMPATABILITY of the filtering equipment with the filtering job is the reason why platers rely on *Industrial* for low cost destruction of toxic waste, or optimum recovery of valuable plating components. Cost consciousness holds the key to such compatability. *Industrial*-engineered systems deliver it by:

A thorough appraisal of your needs and understanding of your process by qualified chemists and engineers.

Impartial recommendation made possible by broad and versatile line of *Industrial*-engineered equipment.

Experience backed by engineering and production facilities with a 30-year reputation for building only the *finest* plating equipment.

Write for Bulletin: "MODERN FILTRATION FOR THE PLATING INDUSTRY"

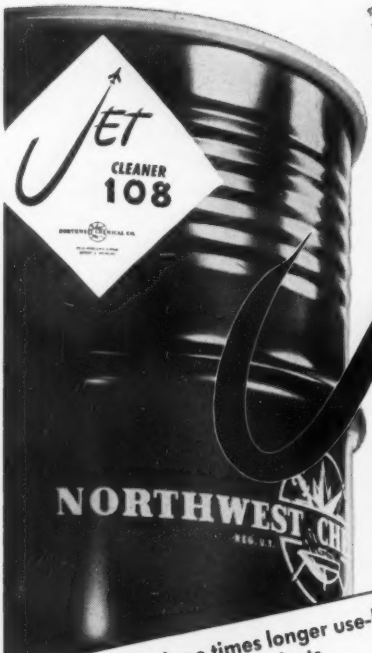
INDUSTRIAL

P259

INDUSTRIAL FILTER & PUMP MFG. CO.

5904 Ogden Ave., Cicero 50, Illinois

For more data circle 316 on Postpaid Card



ANNOUNCING JET 108

AN EXTREMELY LOW-FOAMING GENERAL USE SINGLE OR MULTIPLE STAGE SPRAY CLEANER FOR BETTER RESULTS AT LOWER COST!

- Up to three times longer use-life than competitive products.
- Better cleaning through unusually potent penetrants, surfactants and dispersing agents.
- Carries heavy dirt load without redeposition.
- Higher the concentration, lower the foaming.
- For all ferrous and non-ferrous metals except aluminum.
- Used at 100° to 140° F.
- Easily removes drawing compounds, oils, and greases.
- An effective rust-inhibitor for in-plant use.
- Ideal, following soak cleaners.
- Easily handled, moist, granular alkali base material.
- Non-Toxic, dustless, non-caking.
- No disposal problem.

Got a problem? Let Northwest's Cleaning Specialists help you.

Licensed Manufacturers { Alert Supply Co., Los Angeles, California
Armalite Company, Ltd., Toronto, Canada

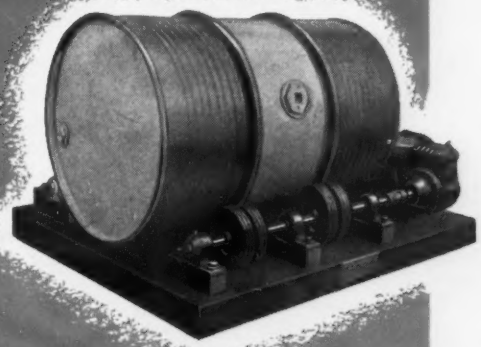
NORTHWEST CHEMICAL COMPANY

9310 ROSELAWN DETROIT 4, MICHIGAN

For more data circle 317 on Postpaid Card

SAFETY REPORT:

NOW... "U. S." DRUM ROLLERS



have *conductive Neoprene wheels* to eliminate static electricity

Now . . . with new "U. S." Adjustable Drum Rollers . . . you can mix, blend or tumble materials right in their drums with complete safety! The wheels on these "U. S." units are made of conductive Neoprene rubber. Any static electricity generated by drum rotation automatically bleeds off through the wheels to ground — cannot build up on drum surfaces to create fire or explosion hazards.

"U. S." Drum Rollers are completely adjustable, will roll smoothly and efficiently any round container from a 5-gallon pail to a 55-gallon drum. They are rugged, powerful, compact — expertly engineered for heavy-duty service. Units are available in 1, 2, 3 or 4 drum capacities to handle loads up to 1000 lbs. per drum, with constant or variable speed drive. Write today for information on the complete "U. S." line.

50-G

PROCESS EQUIPMENT DIVISION

U. S. STONEWARE

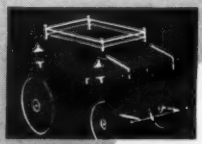
AKRON 9, OHIO

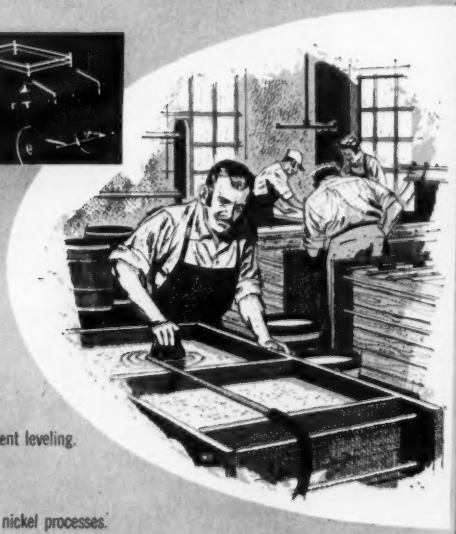
For more data circle 318 on Postpaid Card

HARSHAW

60 years

THROUGHOUT THE PAST 60 YEARS, THE HARSHAW RESEARCH LABORATORIES HAVE PROVIDED MANY DEVELOPMENTS AND IMPROVEMENTS WHICH HAVE SERVED TO PROMOTE THE GROWTH OF THE ELECTROPLATING INDUSTRY. INCLUDED AMONG THESE MANY ADVANCEMENTS ARE THE FOLLOWING OUTSTANDING EXAMPLES:



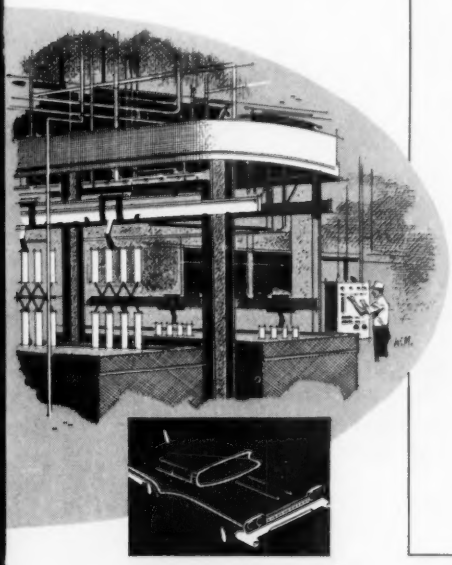


- **1927** Rolled depolarized nickel anodes.
- **1934** NIBRITE...The first commercial bright nickel electroplating process accepted by the automotive industry.
- **1935** ACID TIN ADDITION AGENT developed.
- **1936** XXX CAST CARBON ANODES...This special composition carbonized nickel anode was developed for use in bright nickel solutions.
- **1937** METAL FLUOBORATES used commercially for electroplating.
- **1945** PERFLOW...The first truly leveling, sulfur free nickel deposit.
- **1946** GRANULAR NICKEL SALTS...fine crystal free flowing single nickel salts of high purity.
- **1952** PERGLOW...Outstanding bright nickel with excellent leveling.
- **1953** PERFLOW-PERGLOW DUPLEX Nickel plate with unmatched corrosion resistance.
- **1955** AIR AGITATION...Adaptation for use in Harshaw nickel processes.
- **1958** CYNOREX COPPER...Exceptionally simplified bright cyanide copper process.

We will continue to offer platers complete service, including full programs of research and development in addition to complete plating processes, anodes, and chemicals

working for Platers

Nickel salts, nickel anodes, and cyanide of potash were Harshaw products produced for the Plating Industry as early as 1899. This modest beginning grew continuously to where our service to Platers includes full programs of research and development, many plating processes, and a complete line of chemicals and anodes. We will be happy to send further information on any of the items listed here—ask us for it.



HARSHAW PLATING PROCESSES:

Acid Tin
Tin Fluoborate
Lead Tin Alloy
Lead Fluoborate
Cadmium Fluoborate
Copper Fluoborate
Nickel Fluoborate
Cynorex Copper
(High Speed Cyanide)
Cuprex Copper (Acid)
Perglow Bright Nickel
Nubrite Bright Nickel
Nubrite Bright Nickel
(Air Agitated)
Airglow Bright Nickel
Modified XXX Bright Nickel
Perflow Semi-Bright Nickel
Perflow Semi-Bright Nickel
(Air Agitated)
Perflow-Perglow Duplex Nickel
Lead — Tin Alloy Plating
Nibrite Barrel Nickel
Super Nibrite Barrel Nickel

CHEMICALS AND ANODES FOR MOST PLATING NEEDS:

Acid Tin Plating Addition Agent
Activated Carbon
Airglow Nickel Plating
Addition Agents
Anocaps — Rubber Anode and
Hook Protectors
Bags, Anode
Baskets, Anode
Boric Acid
Cadmium Ball Anodes
Cadmium Fluoborate
Cadmium Oxide
Cadmium Plating
Addition Agent
Caustic Soda
Caustic Potash
Chromic Acid
Containers, Ball Anode
Copper Ball Anodes —
Forged and Cast
Copper Cyanide
Copper Fluoborate
Cynorex Copper Plating
Addition Agents
Cuprex Copper Plating
Addition Agents
Filter Aid
Fluoboric Acid
Hydrofluoric Acid
Hydrofluosilicic Acid
Hooks, Anode
Lead and Lead Alloy Anodes
Lead Fluoborate
Lead Plating Addition Agents
Nibrite Barrel Nickel Plating
Addition Agents
Nickel Acetate
Nickel Anodes — Rolled and Cast
Nickel Anodes — Toll Cast
Nickel Carbonate
Nickel Chloride
Nickel Formate
Nickel Fluoborate
Nickel Salts, Single
Nubrite Nickel Plating
Addition Agents
Perflow Nickel Plating
Addition Agents
Perglow Nickel Plating
Addition Agents
Potassium Cyanide
Potassium Stannate
Rochelle Salts
Silver Cyanide
Sodium Cyanide
Sodium Stannate
Super Nibrite Barrel Nickel
Plating Addition Agents
Tin Aluminum Alloy Anodes
Tin Anodes — Ball and Cast
Tin Chloride
Tin Fluoborate
Tin Sulfate
XXX Bright Nickel Plating
Addition Agents
Zinc Anodes — Ball,
Basket Type and Cast

THE HARSHAW CHEMICAL COMPANY

1945 EAST 97th STREET · CLEVELAND 6, OHIO

Chicago 32, Illinois · Cincinnati 13, Ohio · Cleveland 6, Ohio · Detroit 28, Michigan
Hastings-On-Hudson 6, N.Y. · Houston 11, Texas
Los Angeles 22, Calif. · Philadelphia 48, Pa. · Pittsburgh 22, Pa.

HARSHAW

For more data circle 319 on Postpaid Card

Count on Cowles for
SOAK
SPRAY
ELECTRO
CLEANERS
AA · AK · AL · AM · AP · AZ · B · BR · CD · DO · EL · FE · 320B · WS · QC · SM · NS · PS · NR · LP · KW · HS · HD-N · HD · GM
LixElec · X-460 · Lixol 536 · Lixol Zn · X-460M · ST · WC · WM
to broaden your cleaning capabilities

You can boost your competitive advantage, *with equipment now in your shop,* by relying on the complete Cowles line of metal finishing chemicals—over 100 standard Cowles products and special formulations to handle difficult process conditions on all types of metals.

Arrange for consultation by writing today . . .

Established 1885

75th Anniversary

Cowles CHEMICAL COMPANY

7016 Euclid Avenue • Cleveland 3, Ohio

For more data circle 320 on Postpaid Card

editorial

This Aluminum Business

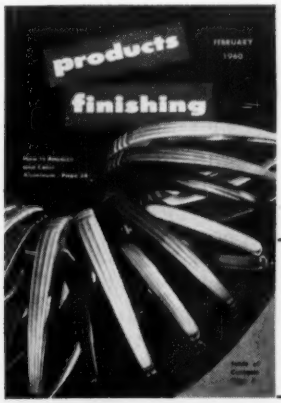
The Aluminum Association reports that 1,953,039 tons of aluminum were produced in the United States during 1959. This is 387,483 tons more than was produced in 1958—an increase of about 20 per cent. Predictions for 1960 indicate a further gain of 10 to 15 per cent.

Assuming that one-half of that quantity of aluminum required some kind of surface finish, and bearing in mind the lightness of the metal, this represents a great deal of work for the finishing industry. Few metal products for the consumer are without some aluminum parts or surfaces.

During the past 35 years, the millions of hours and dollars poured into research on aluminum alloys and finishing methods have given today's finisher improved methods. Finishes may be produced by barrel tumbling, buffing, polishing, electropolishing, chemical polishing, etching, electroplating, anodizing, dyeing, painting, lacquering, porcelain enameling and vacuum metallizing. Over the years, these finishing methods have all been discussed and described in PRODUCTS FINISHING.

In this issue we present an article by R. V. Vanden Berg on anodizing and dyeing aluminum, subjects of considerable interest to the finishing industry at this time.

Finished aluminum is both attractive and durable. It cannot, of course, be "all things to all people." However, as production figures indicate, it is becoming "many things to more and more people."



In view of this trend, the reader will do well to keep abreast of developments in finishes for aluminum. Since it is our editorial policy to cover all finishing methods, PRODUCTS FINISHING will continue to report these developments.

Ezra A. Blount

—EDITOR

PRODUCTS FINISHING is proud to present for the first time, a four-color cover. The color photograph, very kindly loaned to us by the Aluminum Company of America, pictures anodized and dyed aluminum door handles.

Techniques for Coloring Anodized Aluminum

Alloy Selection • Surface Preparation • Anodizing Conditions • Coloring Process • Sealing Methods

By R. V. VANDEN BERG
Finishes Section
Alcoa Process Development Laboratories
New Kensington, Pa.

Part I

Anodic coatings, both plain and colored, have been used for many years in functional and decorative applications (Fig. 1). It has been only recently, however, that this finish, particularly the colored anodic coating, has been fully appreciated.

In discussing colored anodic coatings, everything that influences the final product must be considered: alloy, surface preparation, anodizing conditions, coloring process and sealing method are all important.

The mechanism of anodic oxidation is well known.[1] It is necessary, therefore, to mention only the outstanding aspects of the process.

Perhaps the most important fact is that anodizing produces a conversion-type coating with a definite cellular structure. The photomicrograph (Fig. 2) of a cross section of an anodic coating shows the difference in structure from metal interface to outer surface. The electrochemical action of the anodizing process converts the aluminum surface into essentially aluminum oxide.

This oxide coating has many unusual properties. One of the most interesting is its ability to adsorb substances that impart color to the coating.

Many electrolytes have been used to produce these anodic films on alu-

[1]NOTE: See also, "Properties of Anodic Coatings on Aluminum," PRODUCTS FINISHING, October 1948, page 92.

"Electrochemical and Chemical Coatings for Aluminum," PRODUCTS FINISHING, January 1952, page 46.

"Structural Features of Oxide Coatings on Aluminum," PRODUCTS FINISHING, April 1954, page 78.

"Four Steps To Successful Anodizing," by J. B. Kerr, PRODUCTS FINISHING, January 1959, page 38.

minum alloys. The most popular are dilute acids containing oxygen as a necessary part of the anion. Sulfuric-acid electrolytes are used to the greatest extent at the present time.

The schematic diagram in Fig. 3 shows the general shape and dimensions of the cells and pores of an anodic coating produced in an electrolyte having appreciable solvent action on the coating.

Alloy Selection

Since an anodic coating is a conversion-type coating, its density, thickness and transparency are determined in part by the composition of the alloy from which it is formed.

Various alloying elements in aluminum alloys affect the characteristics (especially the appearance) of an anodic coating.

As mentioned previously, the basic mechanism of anodic oxidation is the conversion of the surface into essentially aluminum oxide. Depending upon anodizing conditions—electrical conditions and the type, concentration and temperature of electrolyte—certain reactions take place involving the various constituents. Under certain conditions, the constituents will be either unaffected, dissolved, or partially or completely oxidized.

The metallurgical condition of each element also has an important effect on the characteristics of the anodic coatings. The other elements may be found in solid solution or as micro-constituents in various stages of precipitation in the aluminum alloy. The size and distribution of the constituents affect the transparency of the anodic coating. These other constituents have a decided influence on the characteristics of the anodic coating, (particularly the appearance) because the oxidation prod-

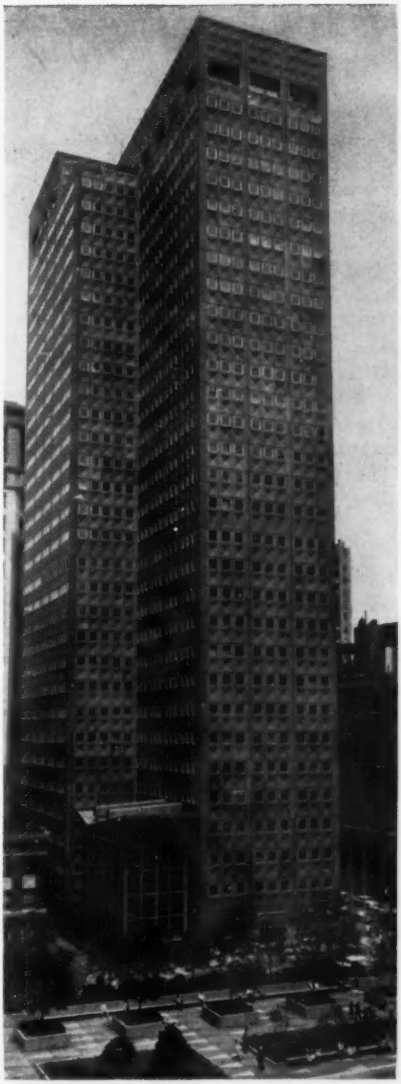


Fig. 1 — Anodic coating protects stamped aluminum panels that sheath the Alcoa Building in Pittsburgh, Pa. The world's first aluminum-clad skyscraper, this building pioneered aluminum curtain-wall construction.

"The apparent color or shade of an anodic coating depends to a great extent on its transparency or opacity."

uct or the unaffected constituent will be present in the anodic coating.

Some of the more important elements present in aluminum alloys, either as alloy components or impurities, are silicon, iron, manganese, magnesium, chromium, copper and zinc. Their effects on the characteristics of anodic coatings have been described elsewhere in considerable detail.

The apparent color or shade of an anodic coating depends to a great extent on its transparency or opacity. The composition of the alloy, therefore, is of utmost importance.

If a bright, metallic color is desired, high-purity or super-purity aluminum is required. Reason: anodic coatings produced on pure aluminum are clear, so that the bright surface of aluminum can be seen through the coating; impurities make the coating more opaque, thus the coating looks dull.

Aluminum of 99.99 per cent purity produces the brightest metallic luster. Pure aluminum, however, has low mechanical properties, and aluminum-magnesium alloys are generally used on a commercial basis.

These aluminum-magnesium alloys have good mechanical properties and excellent forming characteristics and the anodic coatings produced on them have excellent clarity. In this category are European alloys such as Lurium and Raffinal and United States alloy 5405.

Anodic coatings formed on alloys of this type are transparent. It is possible, therefore, to view the bright aluminum surface through the coating. Figure 4 illustrates the difference in transparency of anodic coatings formed on aluminum of 99.95 per cent and 99.2 per cent purity.

If the surface of high-purity aluminum is smooth and bright, its anodized surface also will be smooth and will exhibit a brilliant metallic luster. The anodic coating will be

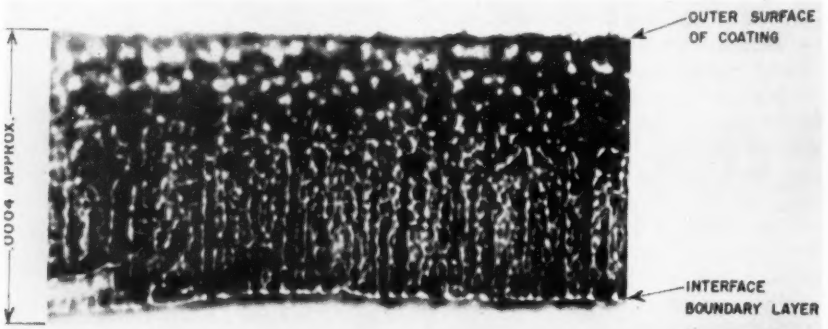


Fig. 2—Micrograph shows cross section of anodic coating. Note porosity shown by sponge-like structure at outer surface of the coating. (Magnification, 1000X). Anodizing converts surface of aluminum into this coating—essentially aluminum oxide.

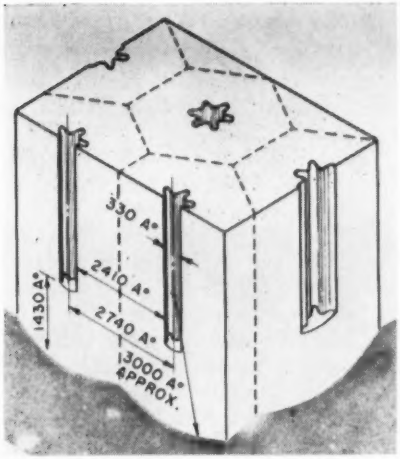


Fig. 3—Schematic diagram shows structure of an anodic coating formed in phosphoric acid electrolyte at 120 volts. General shapes and dimensions of cells and pores of an anodic coating formed in an electrolyte having appreciable solvent action on the coating are as illustrated.

transparent because there are no appreciable quantities of silicon, iron or manganese in these alloys. Thus none will exist in the anodic coating to obscure the bright surface under the coating. Although magnesium is added as an alloy component, it is in solid solution and the results, from the standpoint of appearance, are similar to those with pure aluminum.

Super-purity aluminum-magnesium or aluminum-magnesium-silicon alloys, either wrought or cast, respond in the same manner to anodic oxidation, producing coatings with high metallic luster.

Other factors associated with super-purity aluminum-magnesium alloy castings, however, have an adverse effect on the metallic luster of an anodic coating. Porosity, grain size and flow lines are but a few.

Although the super-purity aluminum alloys are expensive, they are used extensively for costume jewelry, wrist watch cases, automotive trim and other applications where the bright, metallic luster is required to simulate gold.

Recently aluminum-magnesium alloys have been developed that are a compromise between price and purity. They do not have quite the high

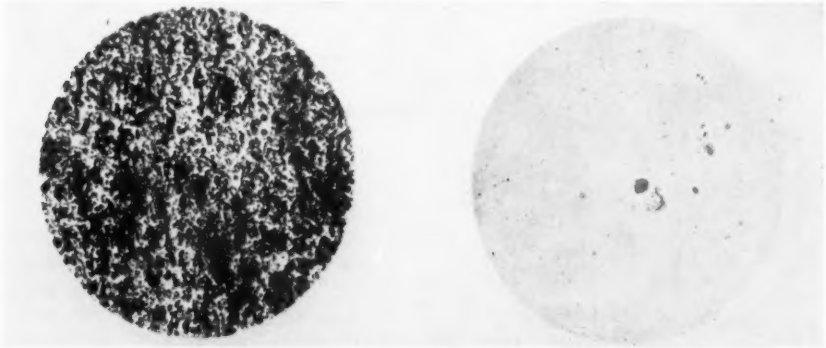


Fig. 4—Thin sections of anodic coatings examined by light transmitted through the coatings: left, anodic coating on aluminum of 99.2 per cent purity; right, anodic coating of greater clarity, which was produced by anodizing aluminum of 99.95 per cent purity.

". . . alloy composition is an important consideration in selecting aluminum for anodizing."

metallic luster of the super-purity aluminum-magnesium alloys, but they do combine excellent response to anodizing with a cost that is practical for commercial applications. Such sheet alloys as 5357 and 5457 are used extensively for commercial applications—automotive and appliance trim. Extrusion alloys 6063 and 6463 respond excellently to anodizing, combining a bright, metallic appearance with good mechanical properties.

Commercially pure aluminum, known as 1100 alloy, has good anodizing properties, but the metallic luster of its anodic coatings is not comparable to the aforementioned alloys. The silicon and iron present in the alloy cause this difference in luster.

Aluminum-magnesium alloy 5005 also converts to anodic coatings that are lustrous, but not as bright as alloys 5357, 5457, 6063 or 6463.

Aluminum-manganese alloy 3003, with its excellent formability, is an important commercial alloy that is used for many products that are anodized. Its brightness or metallic luster after anodizing is not as great as the luster on anodized alloys 1100 or 5005, because this alloy is not as pure and it contains manganese. The oxidation product of the manganese constituent is brown; thus the anodic coatings produced on 3003 alloy have a brownish tint.

Such alloys as 5052 and 6061 have a yellowish tint when anodized, because of the chromium present in these alloys. Anodic coatings formed on 5052 alloy, however, have a more metallic luster than anodic coatings formed on 6061 alloy. The higher purity aluminum of alloy 5052 is responsible for this.

From this discussion, it can be seen that alloy composition is an important consideration in selecting aluminum for anodizing. If a bright, metallic appearance is required after anodizing, the proper alloy must be chosen.

From the previous discussion, it is apparent that colored anodic coatings may be obtained by utilizing the natural coloring of the alloy constituents. Silicion is one of the most important of the alloy constituents which cause development of color during anodizing.

It may be present in a commercial aluminum alloy as an impurity and it also is added intentionally because it imparts certain important func-

"I see Wiggins has made a mistake again."

tional characteristics to both wrought and cast alloys.

When silicon is out of solid solution in an aluminum alloy and the alloy is anodized, the silicon is not dissolved or oxidized. Elemental silicon is gray. Thus the anodic coatings on these alloys have a gray or brownish-gray color, depending on the size and distribution of silicon particles.

This coloring effect is noticeable when surfaces which have been welded with an aluminum-silicon alloy are anodized. The weld fillets have a gray color after anodic oxidation. If uniform appearance is required, then such a condition is objectionable. On the other hand, this principle may be used to produce a gray anodic coating intentionally.

Aluminum alloys containing approximately 5 per cent silicon are now being used commercially for producing a gray anodic coating. The most important application is in the architectural field. The pleasing gray shade obtained on these alloys after anodic oxidation has had wide acceptance as a finish for aluminum building components, particularly since the color is stable.

Aluminum-chromium alloys also convert to colored anodic coatings. The oxidation product of the chromium in the alloy is yellow, thus a yellowish or gold-colored anodic coating is produced.

Alloy selection is also important in producing colored anodic coatings on aluminum alloy castings. In general, the remarks made relative to alloy constituents also apply when anodizing castings. The best casting alloys, based upon appearance after anodizing, are the aluminum-magnesium type. High-purity cast aluminum is even better, but if higher mechanical properties are required, then it is necessary to alloy the pure aluminum. Other alloy constituents, such as silicon, are also used to improve casting characteristics.

Anodizing and applying color to castings presents many problems not associated with alloy composition. Casting alloys have different microstructural characteristics than wrought alloys. Some of these are *grain size, porosity* and *segregation.* Each has a definite effect and presents a special problem.

The inherently larger grain size present in castings makes it almost impossible to obtain anodic coatings with the smooth, bright metallic luster of wrought alloys. The cleaning, electrobrightening and chemical brightening processes used successfully on wrought alloys generally roughen the surface of castings.

Porosity in castings causes con-

"You the bird who wants an aggressive salesman?"

siderable difficulty because the voids in the surface entrap the sulfuric acid electrolyte. In most cases, subsequent rinsing will not completely remove the electrolyte, especially if the pores are small. The entrapped electrolyte is forced from the voids during the coloring operation because higher temperatures are employed for the coloring or dyeing process. The sulfuric acid then will decolorize or leach the dye from the area in and adjacent to the pore. To avoid this, neutralization rinses using dilute solutions of ammonium hydroxide or sodium bicarbonate are sometimes used (with limited success) before the dyeing operation. One of the most successful treatments employs concentrated nitric acid prior to dyeing. This treatment will prove successful in most cases, particularly if alternately hot and cold water rinses are used prior to the nitric acid treatment. The hot-water rinses should be kept below 150 deg. F. to minimize the possibility of sealing the anodic coating prior to dyeing. Oxalic acid electrolytes are sometimes used to anodize castings that are to be colored by organic dyestuffs.[2]

Surface Preparation

Figure 5 shows the general sequence of operations for the production of plain and colored anodic coatings—from surface preparation to the sealing steps.

[2]"Anodizing Aluminum with Oxalic Acid," by Dr. Sakae Tajima, PRODUCTS FINISHING, December 1952, page 42.

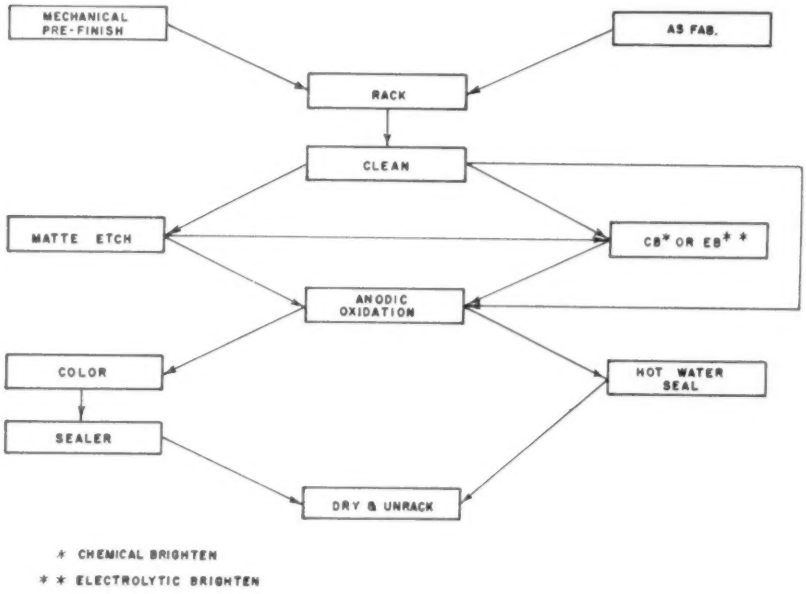


Fig. 5—Flow diagram of anodic oxidation and related processes. As shown, aluminum may be brightened or etched before anodizing, depending upon appearance desired.

Surface preparation prior to anodic oxidation is extremely important.

Mechanical surface treatments such as polishing, satin finishing, buffing, sand blasting or etching are important because the texture of the surface is reproduced by the anodic coating. Smooth, buffed surfaces have a different appearance than satin finished, polished, sand blasted or etched surfaces because of the difference in light-reflecting characteristics.

If the part is to be color anodized, cleaning of the mechanically finished surfaces is extremely important. For example, if residual buffing compound is allowed to remain in the crevices or the pores of a casting, the heat of the coloring and sealing operations often will melt the binder of the entrapped compound. The result will be a streaked or mottled colored finish.

Thorough removal of the buffing compound is imperative to obtain quality coatings on both wrought and cast products. Care also must be taken to use a nitric acid dip prior to coloring anodic coatings on polished surfaces, particularly when coarse abrasives are used. The many small slivers on the rough surface can entrap the sulfuric acid electrolyte in the same way that pores trap electrolyte.

Chemical treatments are also important. Textures are imparted to aluminum's surface by these treatments. A matte texture, for example,

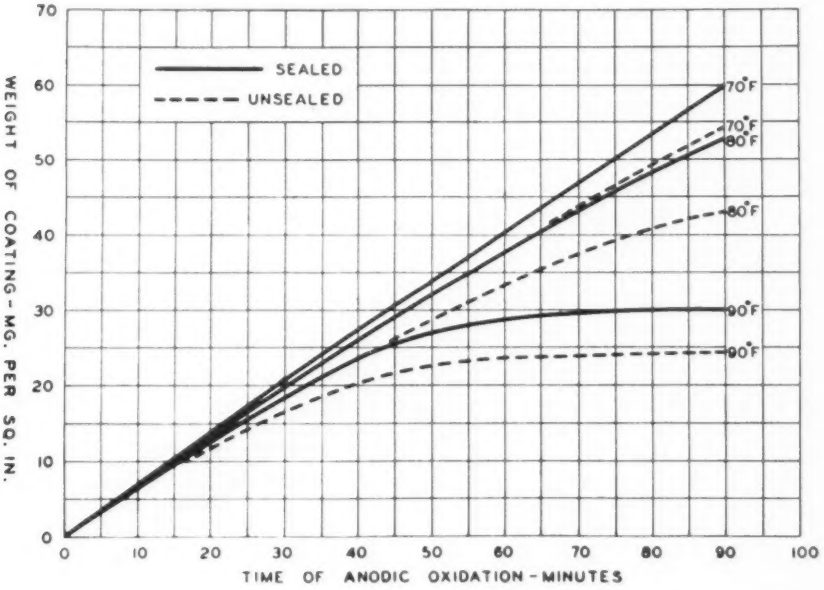


Fig. 6—Graph shows relationship of solution temperature, anodizing time and coating weight. Electrolyte, 15% sulfuric acid. Current density, 12 a.s.f. Aluminum, 1100 alloy.

"Temperature of the sulfuric acid electrolyte also influences the adsorptive characteristics of anodic coatings."

results from etching in alkaline or acid solutions. Good rinsing is necessary to remove completely the residual solutions from joints, crevices and pores. If the solutions are not removed, they gradually seep from the joint or pores and cause local changes in pH and other conditions. These changes have an adverse effect on the surface of the coating and cause streaked, non-uniform, colored anodic coatings.

When an anodic coating with a bright metallic luster is required, chemical or electrochemical brightening of the surface is necessary after buffing. It removes residual buffing abrasive from the surface without destroying the smoothness. If the buffing abrasive were allowed to remain in the surface, an anodic coating with an opaque appearance would result. Etching in caustic soda solutions also removes residual abrasive particles following sand blasting. If these residual particles were allowed to remain, the anodic coating would be dark and mottled.

Anodizing Conditions

The most common electrolyte used for the production of colored anodic coatings is sulfuric acid. Concentration is usually approximately 15 per cent by weight. If a greater concentration is used, the coating formed will have a more porous structure and increased adsorptive capacity, resulting in darker shades. A more dilute solution produces coatings of higher density and lower adsorptive capacity. Lighter colors result.

Temperature of the sulfuric acid electrolyte also influences the adsorptive characteristic of anodic coatings. In general, temperature of the electrolyte is 70 deg. F. Higher temperatures produce anodic coatings with greater adsorptive capacity. Consequently, darker shades of color result. Lower electrolyte temperatures result in less adsorptive capacity and produce lighter shades of color.

These effects of changes in temperature are directly related to the solvent action of the electrolyte upon the oxide coatings during anodizing. The decrease in density (increased porosity) of anodic coatings as temperature increases is shown in Fig. 6.

Higher temperature results in greater solvent action, which increases pore diameter and results in greater adsorptive capacity. Since some alloys, particularly those with appreciable copper content, produce anodic coatings of relatively low density or greater porosity, care must be taken when anodizing these alloys. The electrolyte temperature must not be too high. Anodic coatings on these alloys are naturally more adsorptive because of their inherent structure, making it necessary to use lower electrolyte temperatures to obtain the same color shades produced on other alloys. If higher temperatures are used, porous, highly adsorptive anodic coatings are formed. They are soft, however, and have extremely low resistance to abrasion. Such coatings are described as "smudgy" because abrasion with a soft cloth or buff partially removes them from the aluminum surface.

The characteristics of an anodic coating determined by electrolyte

concentration, temperature and agitation, immersion time, alloy type and current density are reflected in the "coating ratio." This term is defined as the ratio of the weight of anodic coating formed to the weight of metal removed during the anodic oxidation.

Generally, direct current is used in the anodic oxidation of aluminum alloys in sulfuric acid electrolytes. If alternating current is used, the solvent action of the electrolyte upon the oxide coating is much greater. The current reversal makes the aluminum surface cathodic for half the cycle, during which time the oxide coating is not formed. This increases the exposure of the oxide coating to the solvent action of the electrolyte. The final result is the same as that obtained by using a higher electrolyte temperature with direct current.

During anodic oxidation, current density has a pronounced effect on the density of the coating formed. High current density produces anodic coatings with high density and, therefore, less adsorptive capacity. Low current density produces less dense coatings with higher adsorptive capacities for colorants.

The thickness of anodic coatings affects the shade of color when dyestuffs or pigments are adsorbed. For 1100 alloy the relationship between coating thickness and time of anodic oxidation at a current density of 12

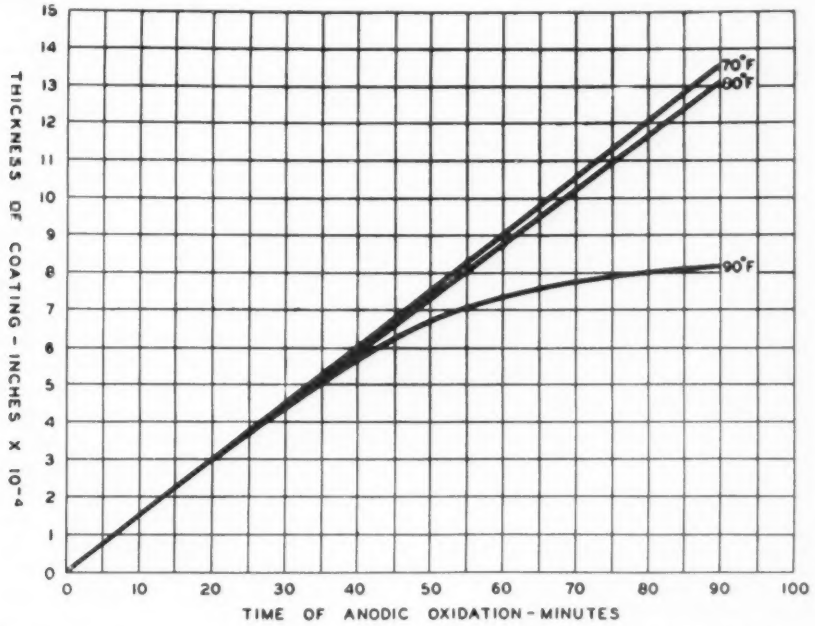


Fig. 7—Curves show relationship between anodizing time and anodic coating thickness. Type of aluminum, 1100 alloy. Electrolyte, 15 per cent sulfuric acid. Current density, 12 a.s.f.

a.s.f. in 15 per cent sulfuric acid electrolyte at 70, 80 and 90 deg. F. is shown in Fig. 7. Thicker coatings have greater capacity to adsorb colorants. Consequently, thicker coatings produce darker shades of color.

Figure 8 is a comparison of weights of anodic coatings formed from various alloys under conventional conditions with those formed under conditions of high current density and lower electrolyte temperatures. Good, firm, rack contacts and racks of sufficient size to conduct the current required are critical requirements in the anodizing process.

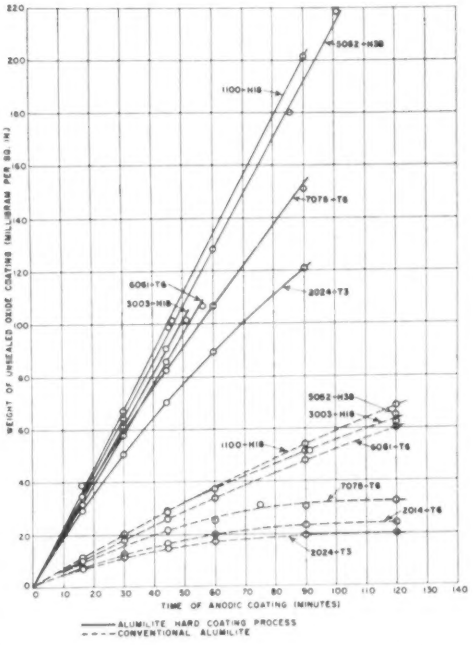


Fig. 8—Curves show relationship between weights of anodic coatings formed under standard conditions (broken lines) and weights of anodic coatings formed at higher current densities and lower electrolyte temperature. (Illustrations courtesy of Aluminum Company of America, Pittsburgh, Pa.)

Current density must be the same for every part on the rack. Otherwise coatings vary in thickness and this results in shade variations.

Since the anodic oxidation process produces heat, constant cooling of the electrolyte is necessary to produce anodic coatings with uniform properties.

Adequate agitation of the electrolyte also is necessary. Inadequate or non-uniform agitation results in localized heating in the anodizing solution. This produces anodic coatings of varying porosity, which results in colored coatings with variations in shade.

Oxalic acid electrolytes produce anodic coatings which are generally more dense because they have fewer pores and thicker cell walls. Subsequent coloring of the coating by adsorption of dyes or pigments results in lighter shades than those produced in sulfuric acid electrolyte.

Conditions of temperature, concentration and current density also may be varied when using oxalic acid electrolytes to produce coatings with various densities.

Anodic coatings produced in oxalic acid electrolytes have a characteristic yellowish tint that varies to a gold shade, depending upon the anodic oxidation conditions.

Anodic coatings are also produced in chromic acid electrolytes. Such coatings have an attractive "ceramic-like" quality which makes them desirable for certain applications. They are opaque and gray in appearance. This results from a fine matte etch that is developed at the interface between the coating and the metal.

Chromic-acid anodic coatings exhibit low resistance to abrasion because they are quite thin and have low density. They do have good adsorptive properties, however, and a range of colors from pastels to black is possible, provided proper operating conditions are utilized.

(To be continued in the March issue of PRODUCTS FINISHING.)

★ ★ ★

Longer Life for Coated Abrasives

Better storage practices can mean 5 to 75 per cent longer life for coated abrasives, according to Richard P. Villwock, research engineer from Michigan Abrasive Co., Detroit, Mich.

Storage conditions are so important because they affect the adhesives used to bond the abrasives to the paper or cloth. Extreme dryness makes the adhesive bond brittle, leading to grain shedding. Extreme dampness causes the bond to soften, reducing cutting action and life.

Manufactured from abrasive grains bonded with either synthetic or natural glue adhesives to a paper or cloth backing, sandpaper performance is greatly affected by its storage environment.

Heat and humidity are the principal factors that should be controlled in the sandpaper-storage environment. Stored in areas where there is continual variation of temperature and humidity, coated abrasives are subject to a cycle of structural stresses that weakens the bond.

Waterproof backings are not a guarantee against damage from humidity variation. They prevent the backing from absorbing moisture but not from contracting and expanding with variations in humidity.

As an aid to users in checking procedures for controlling climatic conditions where sandpaper is stored and the packaged product handled, Mr. Villwock has formulated six general rules that can be employed for obtaining maximum performance from coated abrasives. Each rule is considered equally important.

1. Keep temperature at approximately 70 deg. F., with relative humidity at 35 to 50 per cent.
2. Keep cartons off the floor to prevent moisture pickup from damp floors.
3. Store opened boxes flat on shelves and not on end, to keep from damaging edges.
4. Open cartons only when needed.
5. Rotate stock, and where possible, use the older shipment first.
6. Hang used belts on level hangers to prevent edge damage and keep pegs or hangers as wide as practical to prevent damaging the backing or bond.

By carefully following these simple rules, it is possible to obtain maximum life and work from all types of sandpaper. In almost every case, proper storage of sandpaper will reduce over-all sanding costs.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Use Postpaid Reader Service Cards to request information on any product advertised in PRODUCTS FINISHING

A Review of Solventless Coating with Plastics

The "fluidized bed" process: how it developed, what it can and can't do . . .

By **HANS K. NEUMANN**
Michigan Chrome and Chemical Co.

Conventional solvent-thinned organic coatings have certain limitations and disadvantages that make it worthwhile to examine solventless coating methods.

Many of the plastics discovered in recent decades are insoluble or sparingly soluble in organic solvents. Since these coatings won't go into solution, it's impossible to use them for coatings. The finisher is denied the use of these materials—many of them with valuable properties—because his coating methods make it impossible for him to apply them.

Secondly, coating thickness is limited. Most solvent-type coatings cannot be applied as thick films, at least not in a single application.

Finally, the solvents themselves are wasted—evaporated and exhausted from the finisher's building — a complete loss. And in the process of evaporation, they are usually a fire hazard, something that no manufacturer likes to have in his plant.

Thus the search for a system that permits plastics to be applied as protective coatings without using solvents has been conducted with good reasons.

In the late thirties this search for new coating methods received impetus with the advent of the Schori gun and the flame spraying of polyethylene.[2,3,4]

Another variation of flame spraying later developed is the so-called hot-flock method, in which thermoplastic powders are sprayed with the help of a flock gun onto a preheated surface. Then they are allowed to

melt down into a continuous film.

Both of these methods require carburetor-like setups in which a gas stream flows through a plastic powder, bringing it into a state of suspension. Then some of the powder passes through gun orifices.

Delaware Barrel Company has been coating metal surfaces by a modified flock method for years.[5,6]

Sensational pioneer work along this line was done by H. M. Dent and A. J. Norton in 1932. They suspended plastic particles in an ascending airstream and immersed preheated abrasive particles into this suspension to coat them with plastics, patented the method in 1936. However, it escaped industry's attention.

In the middle of the forties a modification of the aforementioned basic spray methods led to using the carburetor-like setup and dipping preheated metal parts into the gas-suspended powder. This method has been practiced since 1948.[7,12,13]

Because this carburetor setup was similar to the apparatus used in chemical catalytic processes, the name "fluidized bed" was also adopted for the gas-suspended plastic powder.

In 1955 a German patent[8] was published about coating by "whirl sintering of thermoplastic powder." In the text, the description of flame spraying is briefly touched and heat flocking is not mentioned at all.

Two publications[9,10] by the inventor named in the patent followed. In his first paper he clearly describes the heat-flock method and, in his second paper, illustrates a heat-flock setup.

Another interesting German paper was published by T. Engel.[11] He criticizes the German term "sinter" as applied to this method of coating, and suggests that the more fitting term "melt technique" be applied to it. He observes the "onion skin effect" resulting from multiple coats with polyethylene. His method for making hollow plastic containers is used and has been patented by the Delaware Barrel Company.[5,6]

On July 22, 1958, U. S. Patent No. 2,844,489 was issued to E. Gemmer for a process which involves the application of powdered coating materials. It was assigned to Knapsack-Griesheim A.-G., a German company.

The application was filed on December 20, 1957. Polymer Processes, Inc., a subsidiary of the Polymer Corporation, Reading, Pa., has obtained exclusive rights to license the use of this patent in the United States.

A number of American papers about the process also have been published.[7,12,14,16,17]

My own investigation of solventless coating materials was prompted by a desire to produce a heavier coating. Since I was already familiar with plastisols and organosols, my initial interest centered on producing vinyl coatings via the solventless method. Extensive experimentation led to two approaches for making suitable vinyl coating powders, that: (a) had fluo-solid behavior; (b) could be deposited on preheated surfaces; (c) melted down to lustrous non-porous films; (d) showed the meritorious properties of the vinyl resins, such as good chemical resistance, adhesion, unlimited color possibilities, and so on.

The first approach is to freeze-grind completely cured or solvated plastisols to the proper particle size and shape; the second is to dry-blend

straight PVC or copolymer vinyl resins. Considerable work has been done on both methods, with the result that the vinyl coating powders are commercially available. Data sheets furnished by the manufacturers give information about properties and application techniques for the various vinyl powders.

This development of solventless vinyl coating powder necessitated development of equipment for the suspension of the powders. Certain fiber boards or resin-bound sand (like that used in foundry cores) molded into plates, serve well as diffusion plates for fluidized beds; the use of ceramic or metal-ceramic plates often leads to slugging or channelling of the powders. Containers for the beds themselves were made of plywood or sheet metal (Fig. 1).

The availability of vinyl coating powders brought requests for other plastics, such as polyethylene, nylon, epoxy and the cellulosics. These have now been developed. Data sheets available from the manufacturers of coating powders can be consulted for specific information on vinyls.

Advantages and disadvantages of fluidized coating processes have emerged as we gained experience with these methods.

Advantages are:

1. Complete lack of solvents.
2. Ease of coating operation.
3. No tears or drip-off.
4. Thick, uniform coatings formed easily.
5. Better edge coverage.
6. Excellent for coating of rough castings.

The drawbacks are:

1. High-temperature preheat required often warps articles to be coated.
2. Coatings on flat surfaces show a degree of waviness. In certain applications this may be attractive as a surface pattern, but in others it's a disadvantage.
3. Cold-flow properties of the vinyl coating powders at elevated temperatures under load are not as good as those attained with plastisol compounded with high-molecular-weight PVC.

Solventless coating in fluidized beds is a decided step forward in coating technique and well worth serious investigation.

Fig. 1—Container for air-suspended resin powder, in which heated metal parts are immersed during coating process.

★ ★ ★

BIBLIOGRAPHY

1) U. S. Patent 2,326,536. E. P. Irany, *Cellulose Ester Resin*

Powders Suitable for Spraying with the Schori Gun.

2) U. S. Patent 2,582,327. W. A. Haine, *Process for Powdering Polyethylene.*

3) *Liquid Nitrogen Pulverizing,* Linde Air Products, Special Products and Processes, PS Sec. 85-N Item 15.

4) W. B. DeLong and E. V. Peterson, *Flame Spraying of "Alathon" Resin,* "Chemical Engineering," June 1949, p. 123.

5) U. S. Patent 2,737,461. J. S. Heisler, A. Heisler and A. J. Starr, *Process of Forming Adherent Polyethylene Coatings on Metal Surfaces.*

6) U. S. Patent 2,736,925. J. S. Heisler, A. Heisler and A. J. Starr, *Method of Forming Hollow Articles from Polyethylene.*

7) J. A. Neumann and F. J. Bockhoff, *Fluidized Plastic Coatings for Corrosion Resistance,* "Product Engineering," Jan. 1957.

8) German Patent 933019. E. Gemmer, *Process and Apparatus for Protective Coating with Thermoplastic Powders.*

9) E. Gemmer, *The Whirl Sintering Process, Basic Process and Equipment,* "Plastverarbeiter," Sept. 1956, p. 342.

10) E. Gemmer, *The Whirl Sintering, Developments and Newer Experience,* "Kunststoffe," 47, Aug. 1957, p. 510.

11) T. Engel, *The Sintering of Thermoplastics,* "Plastverarbeiter," April 1957, p. 131.

12) J. A. Neumann, *Polyethylene Powder Technology,* "Yale Scientific," Dec. 1956, p. 15.

13) British Patent 688,268. J. A. Neumann, *Improvement in or Relating to Flame Spraying Equipment.*

14) R. L. Checkel, *Fluidized Polymer Deposition,* "Modern Plastics," Oct. 1958, p. 125.

15) U. S. Patent No. 2,059,983. H. M. Dent and A. J. Norton, *Plastic Coating.*

16) *Nylon Coating Process Used to Coat Steel Curtain Carriers,* PRODUCTS FINISHING, Aug. 1957, p. 62.

17) *Plastic Coating Simplifies Insulating Procedure,* PRODUCTS FINISHING, Oct. 1958, p. 64.

★ ★ ★

Movie on Electrostatic Spray Painting. The story of Ransburg Electro-Coating Corporation's new electrostatic hand gun is told in a new sound film entitled "Guided Mist."

This film shows the new tool in operation, both in laboratory and in-plant production shots. Flexibility and versatility of the hand gun is exemplified in the painting of a wide variety of products ranging in size and shape from long outdoor lighting standards to toys, metal furniture, office partitions, water-heater jackets and small pieces of door hardware.

As in Ransburg's automatic No. 2 Process equipment, no compressed air is used for atomization in the hand gun. That's where the movie gets its title, "Guided Mist," for viewers see the mist of paint particles as they are "guided" to the work by electrostatic forces.

For information on obtaining this film for group showings, write Ransburg Electro-Coating Corp., Box 23122, Indianapolis 23, Indiana.

New Finishing System Automatically Paints Automobile Frames

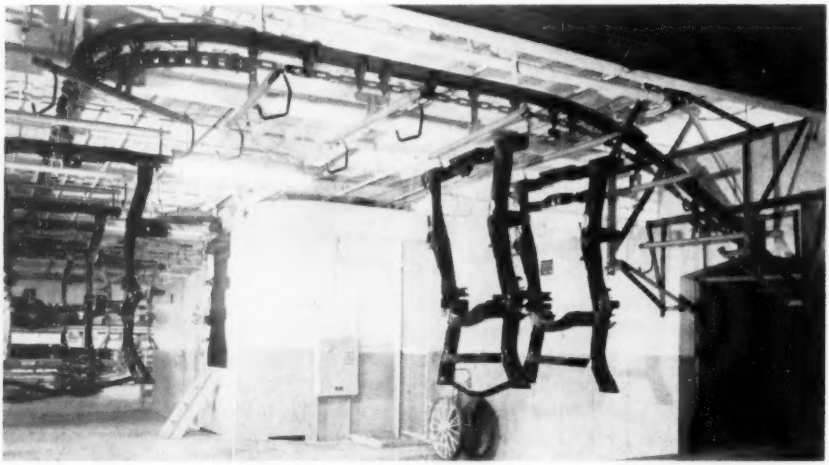
A new paint finishing system recently installed in Chrysler Corporation's Detroit Stamping Plant paints frames for unitized automobile bodies at the rate of 400 an hour. Installed by Detroit's Gallagher-Kaiser Corporation, the system cleans, dip-paints and bakes the frames in one continuous, conveyorized operation.

The frames are automatically loaded on an overhead monorail conveyor. A 60-foot-long two-stage steam-heated washing machine sprays the frames with hot detergent for 60 seconds, then sprays them for 30 seconds with hot water to rinse off the detergent.

The frames then travel into a 60-foot-long gas-fired oven which heats the frames for five minutes at 250 deg. F. to evaporate the water.

Three minutes in a cooling tunnel with outside air passing over the frames cools them to 100 deg. F. so that they can enter the dip tank.

Then the frames go into the dip tank, which is 45 feet long, six feet wide, nine feet deep, holds approximately 10,000 gallons of black enamel. The dip tank is equipped with a 12,000-gallon underground storage



Chrysler's New Finishing System for Frames. (Photo courtesy Gallagher-Kaiser Corp., Detroit.)

COLORS for ANODIZING

Deep Jet Black with D & H Aluminium Deep Black MLW

- **Economy of Operation**
- **Reduced Anodizing Time**
- **Remarkable Fastness to Light and Weather**

The amazing D & H colors bring to the anodizer new opportunities for color and profit. Backed by more than 75 years of experience, D & H colors for anodized aluminum are mostly homogeneous dyestuffs and rarely require buffering agents for pH adjustment.

A letter or call will bring immediate information on D & H colors for anodizing.

DURAND & HUGUENIN S.A.

CARBIC-HOECHST CORPORATION

451 WASHINGTON STREET, NEW YORK 13, N. Y. Tel: WAlker 5-4464

For more data circle 321 on Postpaid Card

tank, circulating pumps and air-operated mixers.

Dip tank and drip area are well ventilated, with 25,000 c.f.m. of air being exhausted and replaced by filtered outside air.

Leaving the dip tank, frames travel through a drip area for 15 minutes, then into a four-pass baking oven. The 220-foot-long oven has a four-zone heating system, is 21 feet wide, bakes the frames for 30 minutes at 300 deg. F.

An automatic unloader removes the frames from the overhead conveyor to complete the finishing process.

★ ★ ★

Catalogs List Reports on Cermets Corrosion Prevention and Removal. Two *Catalogs of Technical Reports* list all reports of research in the fields of cermets and rust prevention and rust removal available from OTS, U. S. Department of Commerce, Washington 25. They are: CTR-319 Cermets, 1940-59; and CTR-305 Rust Prevention and Removal, 1934-59. Price, 10 cents each.

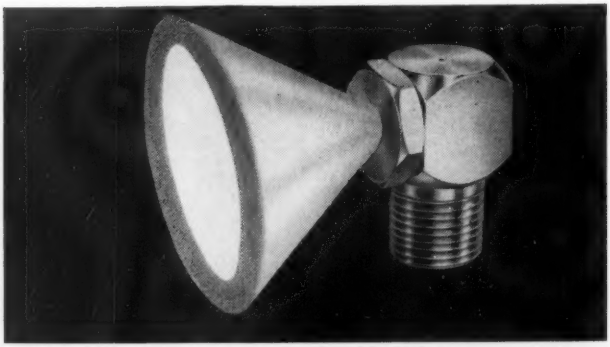
Many of the reports resulted from research by the Army, Navy, Air Force, the Atomic Energy Commission and other U. S. Government agencies. Others are German documents captured during World War II. All of these documents are for sale to the public.

METAL FINISHING NOZZLE PROBLEM

To select a nozzle which will efficiently spray phosphate coatings to metal surfaces.

SOLUTION

Delavan Type 2172 WR nozzle



This outstanding nozzle can operate effectively at pressures as low as 5 psi. Made of 316 stainless steel, the 2172 WR offers high resistance to corrosion, assuring longer, more dependable service. There are no vanes, cores or other obstructions to promote clogging.

Whatever metal finishing nozzles you require, there's a Delavan nozzle that does the job best. Write today for Catalog 33A.

DELAVAN Manufacturing Company

WORLD'S LARGEST MANUFACTURER OF NOZZLES • WEST DES MOINES • IOWA

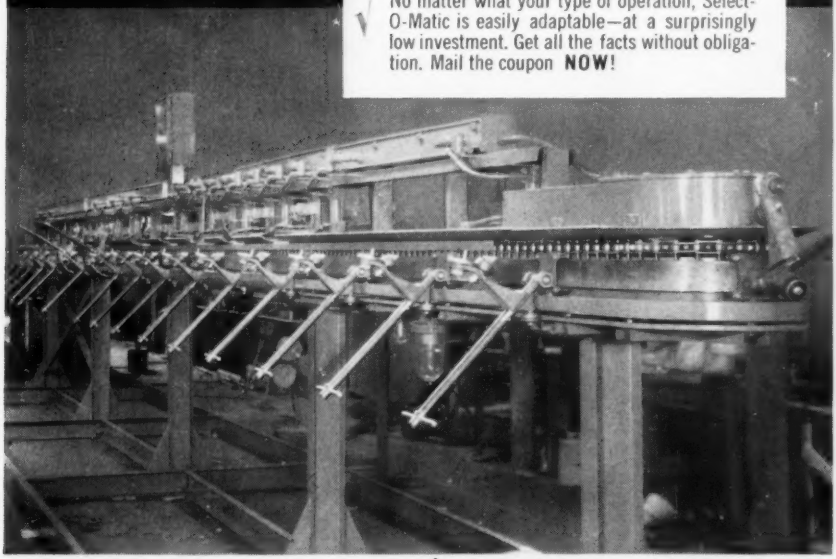
For more data circle 322 on Postpaid Card

Select-O-Matic

MULTIPLE PROCESS PLATER

Up to 5 or more process cycles ...at the same time ...on one machine ...automatically!

- Fully automatic plating at its best . . . efficient, convenient, profitable!
- A single Select-O-Matic plater carries any variety of work pieces completely through 2, 3, or any other number of process cycles **simultaneously.**
- The operator, at the loading station, simply sets a dial on each carrier to select the process cycle for individual racks. The rest is entirely automatic while the racks travel from start to unloading.
- With a Select-O-Matic, different machines for each cycle are unnecessary. Saving in equipment is tremendous. Maintenance is cut to a fraction. All the floor space saved can be put to more productive use.
- No matter what your type of operation, Select-O-Matic is easily adaptable—at a surprisingly low investment. Get all the facts without obligation. Mail the coupon **NOW!**



LASALCO, INC.

HOME OFFICE:
2820 LaSalle St. • St. Louis 4, Mo. • PRospect 1-2990
IN TEXAS:
2805 Allen St. • Dallas, Texas • Riverside 7-8093

ATTACH TO COMPANY LETTERHEAD

Let us have information on the fully automatic Select-O-Matic.

Name.....

Title.....

For more data circle 323 on Postpaid Card

Vinyl Protection for Railroad Cars

Pullman-Standard Manufacturing Co. now paints covered hopper cars with a vinyl maintenance finish that is said to have excellent resistance to the many hazards of railway service.

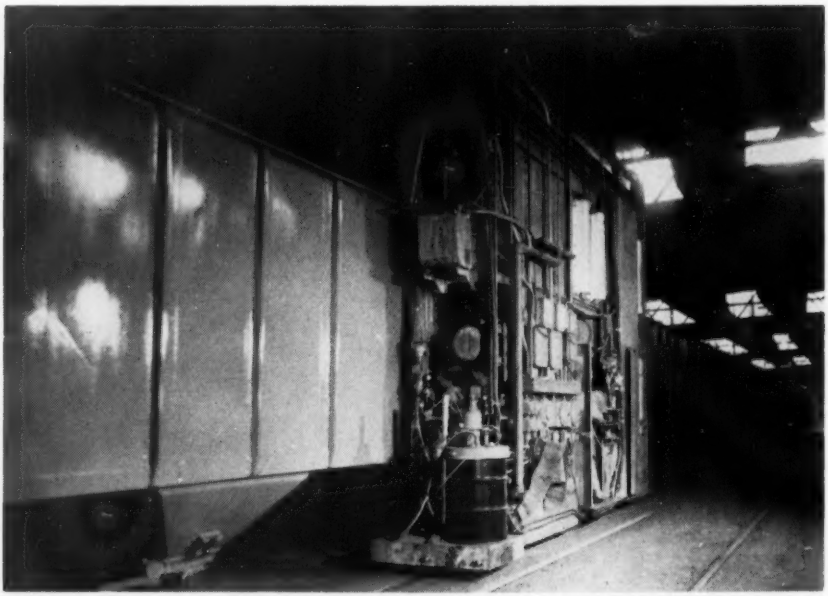
The "Carhide" coating, a product of Pittsburgh Plate Glass Co., must protect the cars from weathering as well as cargoes — cement, bauxite, soda ash, potash and other materials. Based on Bakelite vinyl resins, the coating is sprayed on.

Pullman-Standard shot blasts the cars to remove old paint, scale and dirt. Then red lead primer is hot-sprayed, followed (in less than 45 minutes) by two coats of the vinyl coating, also hot (140-150 deg. F.) sprayed.

A standard DeVilbiss travelling spray booth equipped with hot spray equipment and automatic top and side coaters is used for applying the coatings.

The paint dries quickly, usually is set up before the car is ready to leave the maintenance shop.

The two-coat system withstands the effects of chemicals and weathering, enables cars to remain in service for years without repainting. Another advantage, the company has found, is that the coating does not become reactive with the chemical cargoes.



DeVilbiss travelling spray booth for applying vinyl coating on hopper cars at Pullman Standard Manufacturing Company, Butler, Pennsylvania. (Photograph courtesy Union Carbide Plastics Company, Division of Union Carbide Corporation, New York, New York.)

For more data on advertisement on opposite page, circle 324 on Postpaid Card

Your finest work starts with Federated Plating Materials: No Federated plating material is approved for marketing before it has proven its quality through continuing Asarco research. Thus top performance is assured.

This policy of research and testing has rewarded the plating industry with Conducta-Core lead anodes which have greater throwing power, yet last three or four times longer than other lead anodes. Cadmax, addition agent for cadmium plating, is another example of superior materials. So too is Zimax for zinc plating, Nimax, a nickel plating brightener, and new Conmax, a conversion coating for cadmium and zinc plated parts. All do a better job at lower cost.

Your Federated representative or distributor will be glad to document this superiority. And you'll prove it for yourself when you standardize on Federated materials. Federated Metals Division, 120 Broadway, New York 5. In Canada: Federated Metals Canada, Ltd., Toronto and Montreal.

FEDERATED METALS DIVISION OF

ASARCO

AMERICAN SMELTING AND REFINING COMPANY

Federated products for the Plating shop include ANODES: Copper; lead, including the famous Conducta-Core; zinc, tin, tin-lead, cadmium, brass, silver. NICKEL SALTS: Constant quality control assures full nickel content and identical plating characteristics from every lot. PLATING ADDITION AGENTS: Cadmax for still or barrel cyanide cadmium plating; Zimax liquid or powder; Nimax for low cost bright nickel plating; Conmax, a conversion coating, for cadmium and zinc plated parts.

Plastic Duct Carries Hot, Corrosive Fumes

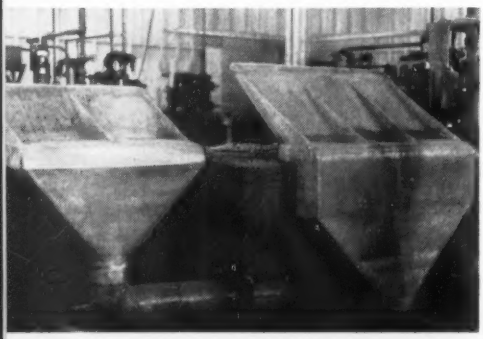
Molten tin sends searing fumes into Hetron-based reinforced plastic ducts at the Canada Wire and Cable Company Ltd. Four pairs of ducts, fabricated by Polyrein Division, Leavens Bros. Ltd., are installed on the tinning machines at Canada Wire. The duct on the right side (see cut) is over a tinning bath. It receives hot fumes from this operation, since the process radiates a considerable amount of heat and some toxic fumes. There is an open flame within two inches of the polyester duct, which made fire resistance a must for this application. The duct on the left side draws hot acid fumes from a muriatic acid bath.

Polyrein uses Hetron polyester resins, a product of the Durez Plastics Division, Hooker Chemical Corporation, for fabricating these ducts. Hetron is fire-resistant, will not support combustion. The ducts are large, one being 60 inches wide, and the smaller approximately 45 inches across its front.

The Hetron-based ducts have been in place nearly a year and show no evidence of breakdown, the company reports.

The corrosive fumes pass through the primary hoods and into duct work, which is also fabricated of Hetron. Then they pass into a manifold and out of a polyester-reinforced fiberglass stack.

The use of reinforced fiberglass ducts made installation a simple matter, and lay-out changes will be no problem, since this type of duct work can be cut with an ordinary saw and rejoined on the job.



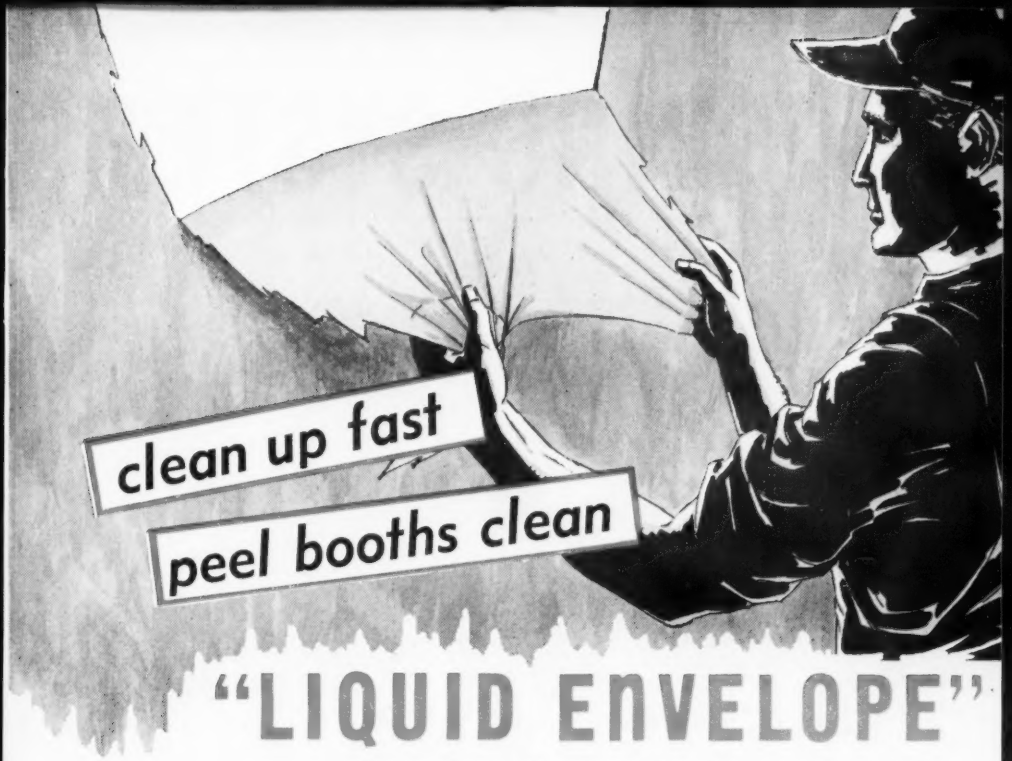
Plastic ducts carry hot, corrosive gases from hot-tinning bath. (Photograph courtesy Durez Plastics Div., Hooker Chemical Corporation.)

★ ★ ★

Handbook for Cleaning and Preparing Metal Surfaces. A metal cleaning handbook that presents over one hundred types of equipment and techniques for cleaning and preparing metal surfaces covers both the basic factors in metal cleaning and specific methods to meet a variety of cleaning problems: degreasing, decarbonizing, washing, phosphatizing, stripping, drying, blackening, rust proofing, pickling, and coating. Various sections tell how to analyze cleaning problems and select methods and equipment.

Copies may be obtained free by writing to Equipment Div., Magnus Chemical Co., Inc., Department PF, Garwood, N. J.

For more data on advertisement on opposite page, circle 325 on Postpaid Card ——→



"LIQUID ENVELOPE"

the original spray booth coating

Spray it on. When overspray accumulates, peel it off. Re-spray and you're back in production. Fastest, cheapest way to keep spray booths clean . . . firesafe, lighter, better illumination, too. Used for years in hundreds of plants . . . large and small.

New Users: Order 5 gallon test-sample at drum-lot price from nearest distributor. Convince yourself!

BETTER FINISHES & COATINGS, INC.

268 Doremus Avenue, Newark 5, N. J. • 2014 East 15th St., Los Angeles 21, Calif.

DISTRIBUTED BY

Abrasive & Supply Co., Detroit, Mich.
Air Engineering Corp., Baltimore, Md.
Avril, Inc., Reading, Pa.
Bay State Spray Equipment Co., Springfield, Mass.
Bison Corp., Canton, Ohio
Block Manufacturing Co., Baltimore, Md.
Bradley Paint Co., Los Angeles, Calif.
Budeke's, Inc., Baltimore 31, Md.
Buffalo Equipment & Chemical Co., Buffalo, N. Y.
Colonial Auto Supply, Norristown, Pa.
Carmac Chemical Co., Pittsburgh, Pa.
Dean & Barry Co., Columbus 15, Ohio
Ellicott Paint Co., Inc., Buffalo 3, N. Y.
Emery Waterhouse Co., Portland, Me.
Franklin Supply Co., Providence 3, R. I.
General Spray Equipment Co., Needham, Mass.
Grapek Co., Newark, N. J.
Gray Co., Newark, N. J.
H. & W. Chemical Co., Inc., Rochester, N. Y.
Hovey Spray Equipment, Philadelphia, Pa.
Hubbard Co., Los Angeles, Calif.
Kellerman Paint Co., New York, N. Y.
Koehler Rubber & Supply Co., Cleveland 15, Ohio
Lea Manufacturing Co., Waterbury, Conn.
The Leonard Company, St. Louis, Mo.
Nelson Industrial Supply Co., Grand Rapids, Mich.
Mid States Industrial Corp., Rockford, Ill.
Vic Miner Co., Toledo 2, Ohio
George V. Morris Co., Philadelphia, Pa.
National Mill Supply, Inc., Fort Wayne, Ind.
O'Donohue Sales Co., Milwaukee 12, Wis.
Paints & Lacquers, Inc., Chicago 22, Ill.
Paterson Paint & Wallpaper Co., Paterson, N. J.
Protective Coatings, Inc., Tampa 6, Fla.
Quad Machinery & Supply Co., Little Ferry, N. J.
Ralco Sales Co., Raleigh, N. C.
C. H. Reed Co., Hanover, Pa.
R. W. Renton & Co., Cleveland, Ohio
C. I. Smith Co., Washington 9, D. C.
Spray Equipment Co., Los Angeles, Calif.
Spray Way Co., Los Angeles, Calif.
Su Par Corp., Brooklyn, N. Y.
Geo. Swatek, Inc., Ridgefield, N. J.
Tanner and Co., Inc., Indianapolis, Ind.
Harold E. Young, Westbury, Long Island, N. Y.

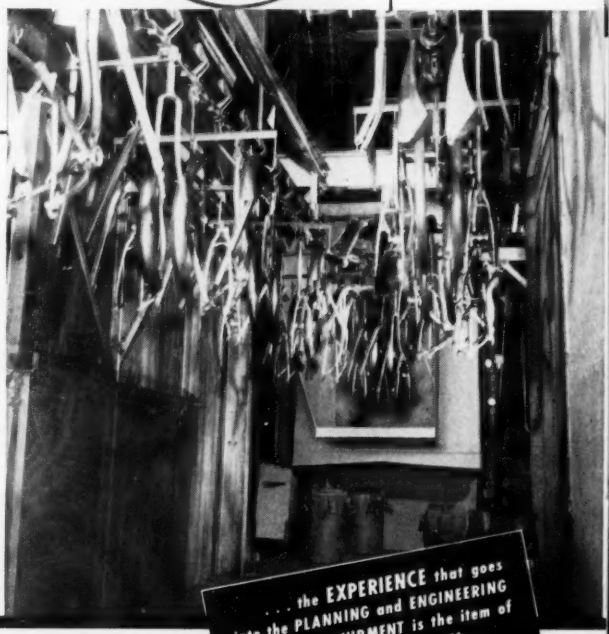
FOREIGN DISTRIBUTORS

Janson & Nicholson, Ltd., London E. 15, Eng.
G. Herring (Aust.) PTy., Ltd., Willoughby, S.W., Aust.
Bishop Products, Ltd., New Toronto, Ontario, Can.
Sidney Roofing & Paper Co., Ltd., New Westminster, B. C., Can.

FINISHING SYSTEMS

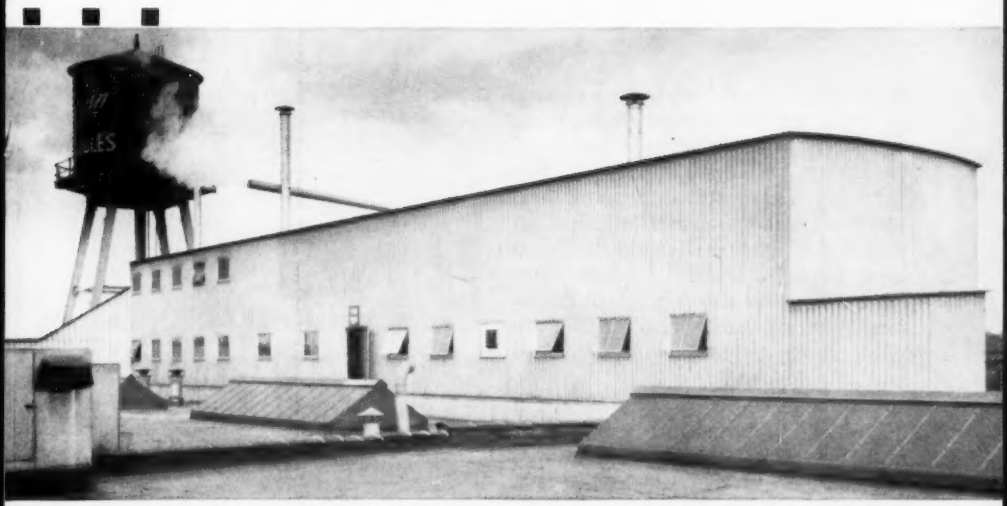
SCHWINN BICYCLES

Schwinn Bicycle Parts entering the Mahon Five-Stage Metal Cleaning and Rust Proofing Machine which is one of the major units of equipment in the Complete, Self-Housed Mahon Finishing System shown on the opposite page. The entire Finishing System is installed on the roof—parts are carried from manufacturing areas through all finishing operations on a continuous monorail conveyor.



. . . the **EXPERIENCE** that goes into the **PLANNING** and **ENGINEERING** of **MAHON EQUIPMENT** is the item of **GREATEST VALUE to YOU!**

For more data circle 326 on Postpaid Card



Self-Housed Finishing Equipment Installed On Roof Saves Over 10,000 Sq. Ft. of Floor Space!

Over a period of twenty-three years the Mahon Company has worked in close cooperation with Arnold, Schwinn & Co., manufacturers of famous Schwinn Bicycles, in developing finishing equipment which now produces what is acknowledged the highest quality finish and the finest appearing finish in the industry.

The three Finishing Systems installed by Mahon in the past twenty-three years have saved Arnold, Schwinn & Co. over 10,000 Sq. Ft. of valuable manufacturing floor space. In the first Finishing System, installed in **1936**, only the Spray Booths were located inside the plant; other units, including two Finish Baking Ovens together with Heating Equipment, Recirculating Fans, etc., were housed on the roof.

In **1950**, another complete self-housed Prime Coat Finishing System, shown above, was installed in its entirety on the roof—the design being a two-level arrangement with Dry-Off Oven, Finish Baking Oven and Heating Equipment Room on the upper level. This System handles Cleaning, Rust Proofing and Prime Coating of all parts produced which receive their 2nd and 3rd coats in the other two Finishing Systems.

In **1956**, a third Finishing System was installed with 2nd Coat Finish Baking Oven, Cooling Area, 3rd Coat Finish Baking Oven and Heating Equipment Room located on the Roof. Electrostatic Spray Booths for this System were located on the second floor of the plant directly below.

When you consider buying a new finishing system, or any unit of finishing or processing equipment, you, too, will want to discuss methods, equipment requirements and possible production layouts with Mahon engineers. See Sweet's Plant Engineering File for Information and representative installations, or Write for Mahon Catalogue A-660.

THE R. C. MAHON COMPANY • Detroit 34, Michigan

SALES-ENGINEERING OFFICES in DETROIT NEW YORK, CHICAGO LOS ANGELES and SAN FRANCISCO

MAHON

Pretreatment Makes Welding Galvanized Parts Easy

Difficulty in welding a galvanized surface can be avoided by masking the weld areas with a solution of potassium dichromate prior to galvanizing. This solution is being used by the Westinghouse Electric Corporation's lighting division in Cleveland, Ohio, to leave a clean surface for welding on the bottom of transformer tanks. After welding, the ungalvanized surface is shot-blasted and zinc-sprayed.

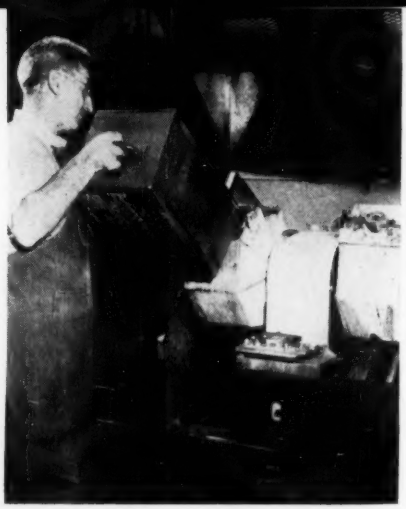
The masking solution consists of 32 ounces of potassium dichromate and one gallon of water. It is applied at a temperature of 120 to 140 deg. F. and is allowed to remain in contact with the metal for two minutes. Surface is dried before galvanizing.

★ ★ ★

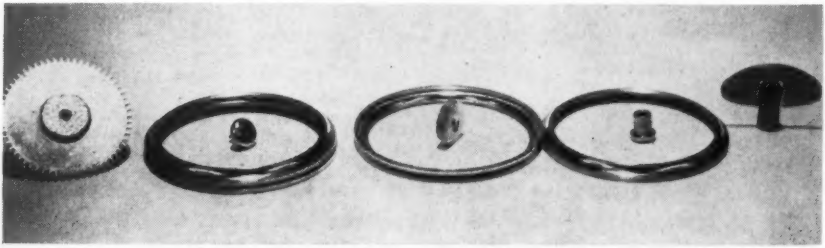
Smoothing Off Clock Parts

A barrel finishing installation now removes burrs and smooths rough edges from 80,000 parts per day at Westclox Division of General Time Corporation, La Salle, Illinois, maker of the famous Big Ben alarm clock.

Before Almco, Queen Products, Div. of King-Seeley Corp., installed the barrels, workers deburred the clock parts with power tools. In contrast to the limited production of the former method, the tumbling machines can deburr and finish 10,000 gear wheels per hour.



John Chambers adds a load of clock parts to predetermined proportions of media and compounds in one of the 10 barrel finishing machines operated by Westclox. (Photos courtesy Almco, Queen Products Div., King-Seeley Corporation, Albert Lea, Minnesota.)



Here are a few of the 24 different clock parts now deburred and finished at Westclox Division of General Time Corp., La Salle, Ill. Production is 80,000 parts per day.

THE WORLD'S FIRST

NEW!

HEAT RESISTANT

24K Acid Bright GOLD

OROTHERM HT

Patent Pending

Heat Resistance
5 HOURS 400°C Minimum

Hardness
150+KNOOP

Brightness
MIRROR

Control
ONE ADDITION AGENT

Temperature Range
65°F to 115°F

Operation
BARREL or TANK

For complete information
Write, Wire, Phone or TWX

Technic INC ST1-6100

P.O. BOX 965 PROVIDENCE, R.I. 7001 NO. CLARK ST. CHICAGO 26 ILL.

For more data circle 327 on Postpaid Card

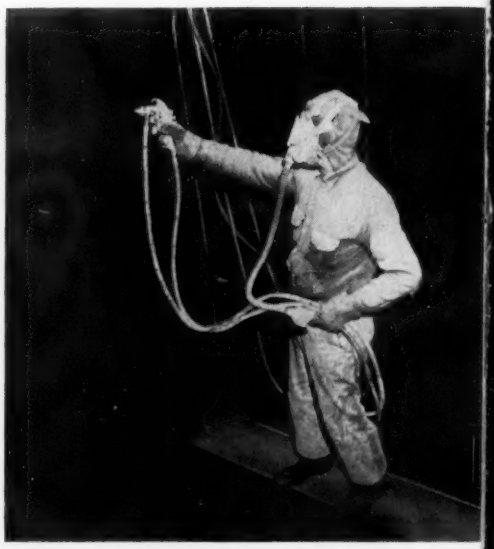
Polysulfide-Epoxy Coatings Solve Abrasion and Corrosion Problem on Hopper Cars

A coating made of polysulfide liquid polymer and epoxy resin has solved a major maintenance problem for owners of fertilizer and chemical-carrying railroad hopper cars, according to Thiokol Chemical Corporation. The coating not only protects the steel cars against corrosion, but also withstands abrasive action of dry chemicals, fertilizers.

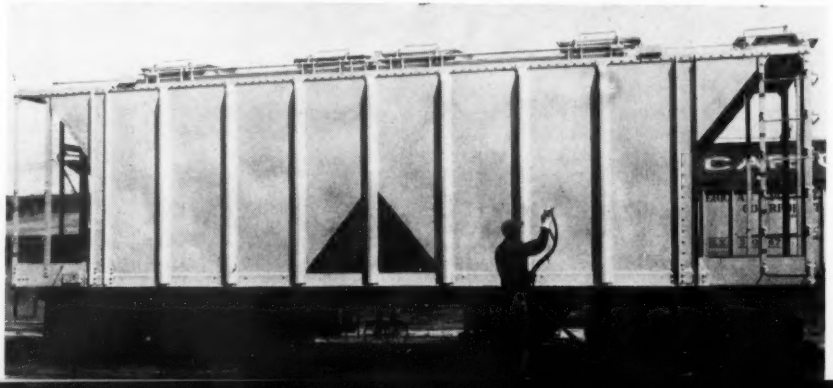
The polysulfide liquid polymer and epoxy resin coating developed by Thiokol is sprayed on the interior and exterior of the railroad car. After three years' service—carrying muriate of potash—the coating is reported to be in excellent condition.

The trial evaluation has been so successful that North American has coated 100 additional cars with Thiopox, a commercial polysulfide-epoxy coating supplied by Phelan Faust Paint Manufacturing Company. It is expected that these cars will be in service for at least five years without the need for any additional painting.

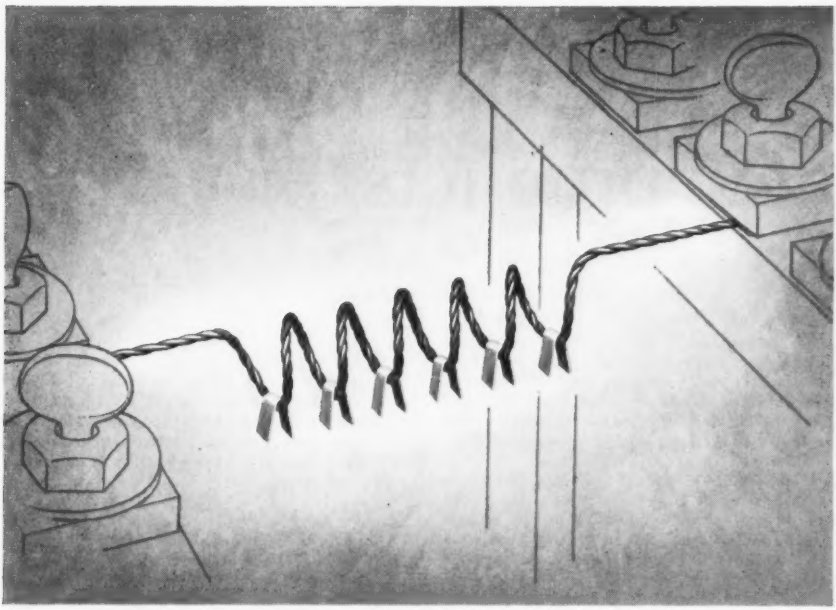
Polysulfide liquid polymer is used in the coating to contribute toughness and impact resistance over a wide temperature range and also to obtain better adherent qualities, according to Thiokol.



Polysulfide-epoxy is sprayed on interior of hopper car. Such a coating is expected to last at least five years. (Photographs courtesy Thiokol Chemical Corp., Trenton, N. J.)



North American hopper car used for carrying harsh fertilizer is sprayed with polysulfide-epoxy coating which is tough enough to resist abrasion as well as the corrosive action of such chemicals. Polysulfide polymer used in coating improves adhesion, impact resistance.



New *high-performance tungsten strand makes better vacuum metallizing coils*

Vacuum metallizers who wind their own coils will benefit from the controlled re-crystallization rate built into Sylvania's new metallizing strand. Not only will coils be easier to produce, but they will have a much greater shot life. Controlled re-crystallization reduces brittleness and twisting, minimizing premature breakage during reloading and processing.

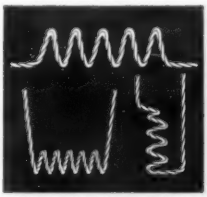
This new Sylvania wire has been thoroughly service-tested in many types of coils. Its uniformity and freedom from splits are assured by electronic quality-control testing during production.

Your Sylvania Field Sales Engineer will be glad to supply you with complete details. Call him now.

These sizes now in production:

No. of strands		Wire Size Inches	No. of strands		Wire Size Inches
2	x	0.030	3	x	0.040
3	x	0.020	4	x	0.015
3	x	0.025	4	x	0.020
3	x	0.030	4	x	0.030
3	x	0.030	(with 0.025" aluminum core)		

Write for new technical bulletin



Sylvania "Readymade" Coils
164 standard types

If you prefer, Sylvania will supply precision wound coils in standard shapes and sizes. They're all described in the Sylvania coil catalog. Or let us bid on your special requirements.

SYLVANIA GENERAL TELEPHONE SYSTEM

Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

Sylvania Electric Products Inc.
Chemical & Metallurgical Div.
Towanda, Penna.

For more data circle 328 on Postpaid Card

Forward March in 1960...

Udylite offers new products, processes

MAJOR DEVELOPMENTS IN EVERY PHASE OF THE INDUSTRY COME FROM THE WORLD'S LARGEST PLATING SUPPLIER

Udylite steps up the production of new equipment and processes and continues its expanding program of research and new product development. Here are some of the New benefit-packed innovations that Udylite has ready for you NOW.

New Barrel assembly Just released, Udylok-Tempron Barrel Assembly . . . unique interlocking cylinder construction which permits speedy field repair . . . tie-rod-free construction . . . twelve machine screws the only metal used in cylinder . . . advanced ring gear design with heavy duty, four pitch gearing for greater strength . . . longer life . . . made of non-corrosive Udylon . . . *and* a revolutionary new superstructure design.

New Rectifier line A whole new line . . . completely re-designed from the ground up . . . economies affected with new method of manufacture mean real savings in your original cost . . . keep maintenance and replacement costs minimum . . . fully guaranteed and built to usual high standards of Udylite quality construction.

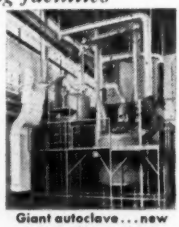
New Tank lining Brand new tank lining . . . for special applications . . . introducing a new recently perfected material of unusual properties . . . an EXCLUSIVE with Udylite.

New Filter series Improved . . . high area . . . low pressure filters . . . designed with economy of operation in mind for you . . . long range savings . . . low, low maintenance costs . . . greatly increased efficiency . . . full range of sizes and capacities.

New Processes due Another great forward step in the battle against corrosion . . . A NEW Udylite bright plate process . . . now under rigorous testing for introduction early in the spring . . . a product of the continuing research and development that gave you "The Incomparable 66" and Bi/NICKEL.

New Automatic Machine features Plating automation . . . equipment advances . . . including new skip mechanism . . . 1960 models of Cyclemaster . . . and the famous Udylite V.I.P., automated barrel plating machine . . . to fit economy budgets.

New manufacturing facilities $600,000.00 expansion program at Udylite, Detroit . . . installation permits quality controlled production of vital raw materials . . . guarantees source of supply . . . provides you with product of insured purity . . . at a reasonable price.



Giant autoclave . . . new plant facility at Udylite

The newest and the best in plating supplies, equipment and processes . . . products such as those shown here flow constantly from Udylite to industry. Watch for detailed announcements every month. If you'd like to learn more about any of the developments we've talked about right away, just get in touch with your Udylite man today or write to:

the udylite corporation • Detroit 11, Michigan

world's largest plating supplier

For more data circle 329 on Postpaid Card

Announcing

A MACHINE FOR *Rapid* C-O-N-T-I-N-U-O-U-S SPRAY COATING OF ELECTRICAL AND ELECTRONIC COMPONENTS HAVING COAXIAL LEADS

Accurately coats diodes and small components of varying lengths with sprayable materials at a rate of up to 8,000 per hour, depending on the coating requirements and size of the components.

A resinous composition, such as an epoxy compound, can be used to completely form a light-tight seal for diodes. Capacitors, fuses, resistors and other coaxial lead components can be provided a base coat for color banding and labeling, and a baked and abrasion-resistant clear coating that protects the designations.

The coating is confined to desired areas by two accurately spaced traveling masking strips as racks, loaded with diodes, move continuously through the spray station. The diodes, while in the racks, are spun so as to assure an even coating. The coating is applied only to the diodes and desired portions of its lead wires so as to prevent cracking if the wires are bent for insertion in a printed circuit board. There is no coating to interfere with soldering. The diodes remain in the racks for one-handling of both the spraying and, if desired, the baking operations. The magazine will handle racks pre-loaded from a previous operation or empty racks which can be loaded as they emerge from the magazine.

Automation is practical, inasmuch as the coating material is confined by remote masking, not mechanical means, thus ELIMINATING THE NEED OF SPRAY MASKS, REGISTERING DEVICES, AND MASK CLEANING OPERATIONS. The machine can be used in conjunction with a lead straightener, and orienting and testing machine, and can be adapted to fit individual requirements.

CM Conforming Matrix CORPORATION

356 TOLEDO FACTORIES BUILDING • TOLEDO 2, OHIO
Phone CHerry 8-3518

For more data circle 338 on Postpaid Card

Metals Memos

News about metals and metal products . . .

Aids Aluminum

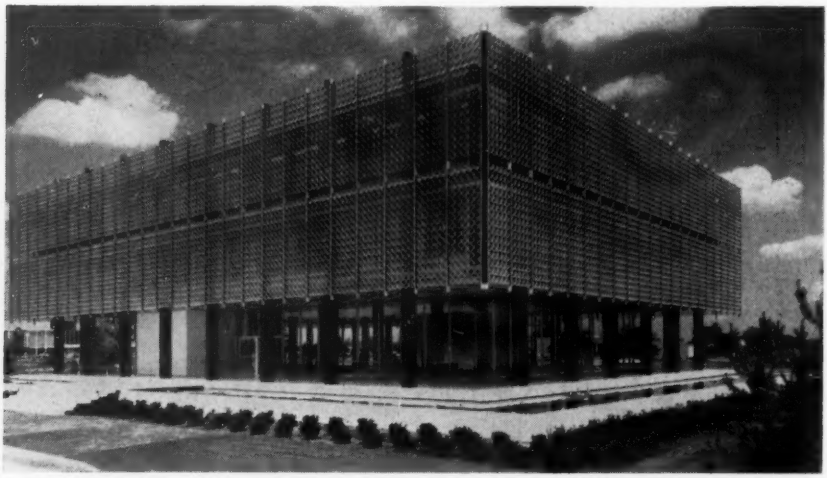
A new process developed by Harvey Aluminum protects aluminum extrusions from superficial corrosion during shipping, storage and handling. Called Anocote, the Torrance, California, company's process requires special production operations and metallurgical techniques.

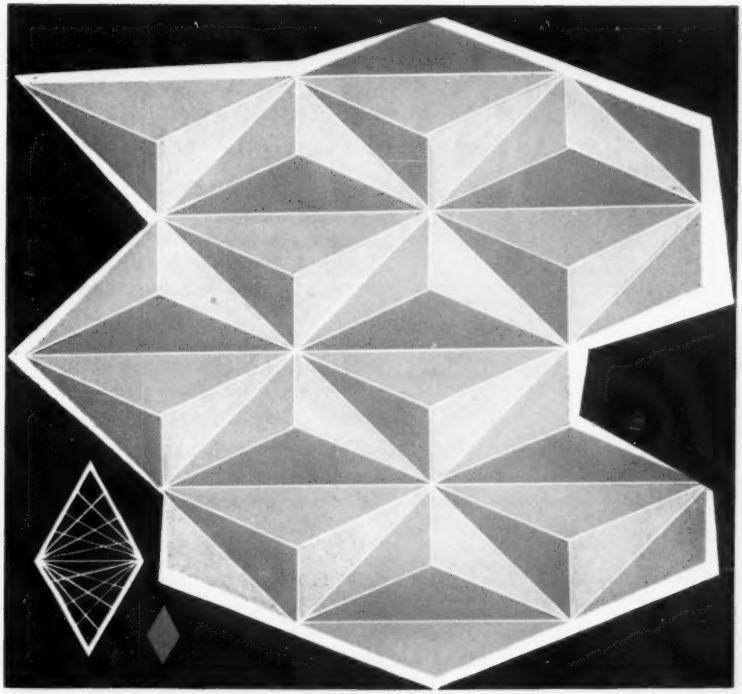
The appearance of the Harvey finish does not alter the natural color of aluminum. Anocote may be used as a final surface treatment, or for temporary protection of sheets that will eventually be etched or anodized. Fabricators who anodize their products report that the surface of the Anocote aluminum is smooth, uniform and free of defects after anodizing or etching.

★ ★ ★

Sun Screen

A lacy anodized aluminum sun screen surrounds the new two-million-dollar Reynolds Metal Company office building in suburban Detroit. Screen is made of rings ten inches in diameter and two and one quarter inches deep locked together mechanically to form a beautiful screen that shields the building from sun and dramatizes the qualities of aluminum. Rings are anodized and dyed gold. Building was built as a show place for aluminum and aluminum products. Extensive use is made of aluminum throughout the building. Total of 200,000 pounds of Reynolds Metals' product was used in its construction.





ONLY FROM SANDOZ . . .

extra values in dyes for anodized aluminum

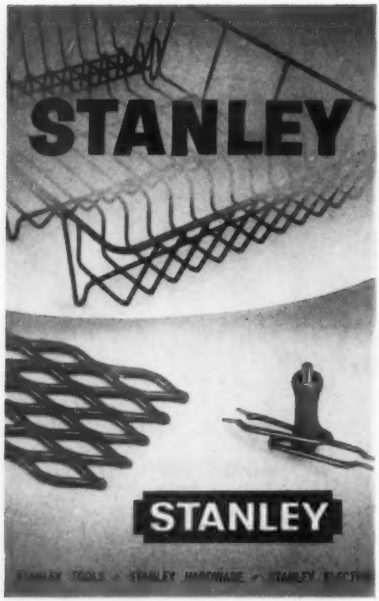
- ★ dyes that command confidence . . . because they have proved their worth in production anodizing
- ★ dyes that are reliably standardized in every wanted color with sales appeal
- ★ immediate technical service from specialists in color anodizing problems
- ★ products and product samples in a hurry when you need them in a hurry
- ★ up-to-date technical data on color anodizing
- ★ and now, SANDOFIX ALU*, the first and only non-smutting sealer for anodized aluminum. *Pat.

SANDOZ

Want to be among the first to learn of new Sandoz dyes and dyeing assistants? Send us your name and Company affiliation for addition to the Sandoz mailing list of new product releases and technical booklets.

SANDOZ, INC. • 61-63 VAN DAM STREET, NEW YORK 13, N. Y. • ALGONQUIN 5-1700

For more data circle 330 on Postpaid Card



Wire Goods **LOOK BETTER, LAST LONGER,** *when coated with*

PLASTISOLS

Whether you manufacture industrial equipment, where high resistance to abrasion, chemicals, oils, fumes is needed . . . or articles for the home, where appearance is important . . . Stanley Plastisol Coatings will add value and sales appeal.

Custom formulated. Available in a wide range of colors for cold dip, hot dip or gasket coating applications. For complete information, write for Idea File Folder and data sheets.

STANLEY CHEMICAL COMPANY
Subsidiary of The Stanley Works
DEPT. B, 44 BERLIN STREET, EAST BERLIN, CONN.
See Stanley first for finishes that last
LACQUERS • SYNTHETICS • VINYLS • ENAMELS

TOOLS • STANLEY-JUDD DRAPERY HARDWARE • STANLEY STEEL STRAPPING

For more data circle 331 on Postpaid Card

Metals Memos (continued) . . .

Brightness and Bumps

A Stevens Institute of Technology professor is working on a project that could be very significant to the electroplating industry: the cause of brightness in electroplated metals.

Working under a contract with the U. S. Army Office of Ordnance Research, Metallurgy Professor Rolf Weil has discovered that the amount of light reflected by electroplated nickel depends upon the size of microscopic peaks and valleys on its surface.

Although the plated metal may appear to be perfectly smooth and level to the naked eye, microscopic studies show that there is no such thing as a perfectly flat metallic surface at room temperatures. Actually the surface is a series of small bumps and crevices. When these are smaller than the wave length of light, you get reflections; when larger, the metal appears dull.

Dr. Weil isn't concerned with applications right now. But if his research opens the way to better control of those bumps and valleys, it could mean brighter, more consistent electroplated finishes.

Professor Weil worked with the Stevens electron microscope. An impression of the surface of the electroplated nickel was made in an almost invisible film of carbon. Microscopic spheres (about 1000 of them would fit on the head of a pin) were sprinkled on the carbon film. The carbon's surface and the spheres were then photographed under the electron microscope. Using the particles as a scale of measurement, Dr. Weil determined the depth of the ridges. Then he calculated what fraction of the carbon's surface area could reflect light because its peaks and valleys were smaller than light's wave length.

Soil Stopper

A water-like fluid based on colloidal silica can be brushed, sprayed, roller coated, mopped or wiped on clean interior or exterior painted surfaces to produce a surface so slick that dirt just can't take hold.

Secret of the new coating is that microscopic pores of seemingly smooth painted surfaces are filled to produce a surface so slick that there is nothing for dirt to cling to.

The new coating dries in 15 minutes, makes wiping off smudges easier, does not influence weathering, can be painted over when repainting time comes. It's been field tested in industrial maintenance applications by its maker, Dupont Finishes Div.

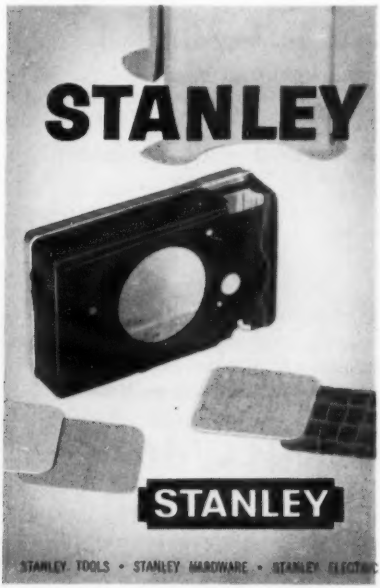
Only a thin coat is required—the thinner the better, in fact. Product will not be sold to homeowners until commercial tests are complete.

Simple Sorter

A simple, inexpensive device which sorts metals which look very much alike has been developed at Knolls Atomic Power Laboratory. It will differentiate between Inconel and stainless steel, zircaloy-2 and zirconium, and zircaloy-2 and hafnium, in the twinkling of an eye.

The device, which was developed by KAPL's George Martin, consists of a standard milliameter with two leads. One ends in a clamp, and the other in a small carbon-steel file. Metals are tested by simply attaching the clamp to, and rubbing the file briskly against the metal whose identity is in doubt.

Rubbing the file generates a tiny current, about 5-10 milliamperes for Inconel or stainless steel, which causes the dial on the meter to indicate the type of metal being tested.



Lasting Bond... Lasting Beauty

when you choose

PLASTISOLS

OR LAMINATING ADHESIVES

for vinyl-to-metal applications

For roller coating metal, Stanley Chemical Plastisol systems give lasting bond, attractive appearance. Textured surfaces look better *longer* because Stanley Plastisols provide maximum resistance to abrasion.
For laminating vinyl film to metal, Stanley Laminating Adhesives insure maximum bonding strength even during severe deep drawing or crimping operations.
Write for information, engineering assistance.

STANLEY CHEMICAL COMPANY

Subsidiary of The Stanley Works

DEPT. B, 44 BERLIN STREET, EAST BERLIN, CONN.

See Stanley first for finishes that last

LACQUERS • SYNTHETICS • VINYLS • ENAMELS

STANLEY TOOLS • STANLEY HARDWARE • STANLEY ELECTRIC TOOLS • STANLEY-JUDD DRAPERY HARDWARE • STANLEY STEEL STRAPPING

For more data circle 332 on Postpaid Card

For Paint Finishers

PRODUCTS FINISHING PAINT FINISHING ARTICLE COMPETITION

AWARDS

First Award: $500.00

Second Award: $250.00

Five additional Awards: $50.00 each

WRITE: An article describing how a durable and/or attractive paint finish is produced in your plant. Article should include information on the following points:

a. Cleaning methods and materials and conversion coatings or other pretreatments used; why these methods and materials are used.

d. Methods of paint application and types of materials being used; why these materials and methods are used.

c. Application equipment and design features thereof.

d. Problems encountered and how they have been or are being solved.

e. Testing methods and the specifications set up for this finish, and results of tests that show durability, resistance to environment and acceptable appearance.

Illustrations and photographs should be included as they are applicable.

The article or paper must be an original article, not published elsewhere (with the possible exception of an internal company magazine or engineering department specification, for example). In such cases, the author must provide reference to other publication of the material.

WHO MAY ENTER: Anyone employed in a design, engineering, process, production or executive capacity in a manufacturing plant where paint finishes are applied to metal products. Suppliers of equipment or materials used in paint finishing are excluded.

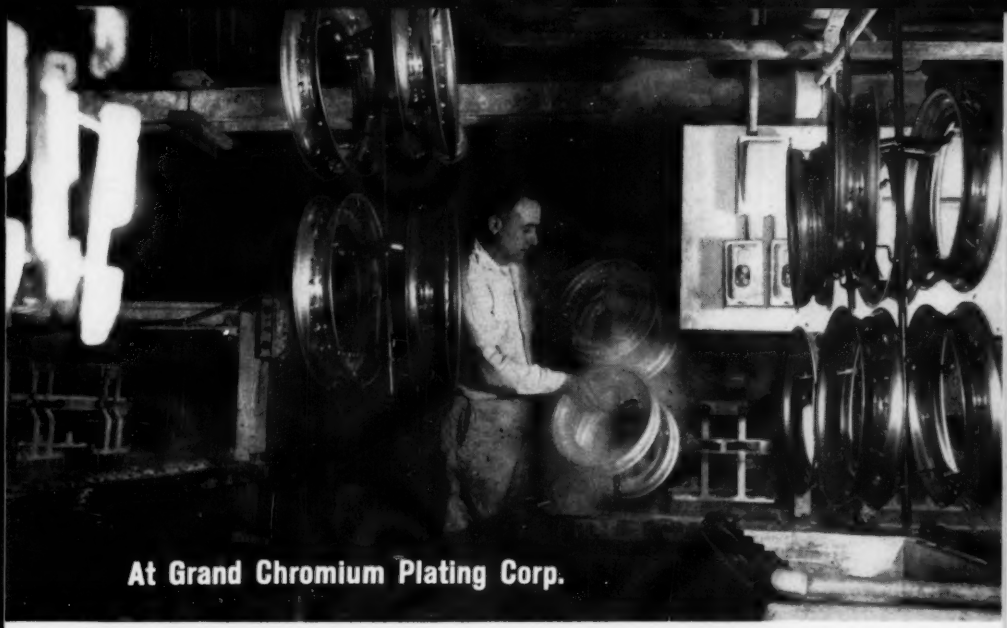
COMPETITION ENDS ON: OCTOBER 1, 1960.

FOR MORE DETAILS WRITE TO:

Paint Finishing Article Competition

c/o PRODUCTS FINISHING, 431 Main St., Cincinnati 2, Ohio

For more data on advertisement on opposite page, circle 333 on Postpaid Card ——→



At Grand Chromium Plating Corp.

Copper Anode Consumption **Reduced 20%** with OFHC Anodes

Denser, more uniform copper deposits from OFHC Brand Anodes in a copper cyanide plating bath cut anode consumption 20% at Grand Chromium Plating Corporation of Brooklyn, New York. Plating over raw steel surfaces, Grand Chromium discovered that OFHC Anodes minimized the heavy preparatory buffing of rough areas as well as final buffing of plated parts required when using other anodes. With OFHC, only superficial buffing of "orange peel" was necessary and final buffing was drastically reduced. As a result, they ended up with the same amount of copper on their plated parts, using thinner initial deposits – cutting anode consumption 20%. Other benefits Grand Chromium derived by using OFHC Anodes were:

- **less copper lost in solution**
- **anodes maintained efficiency while dissolving uniformly up to the solution level, minimizing scrap loss and reducing down-time for anode changeover**
- **solution balance was consistently maintained**

Platers get more copper plating mileage with OFHC Anodes–the purest copper anodes produced–completely free of oxides and residual deoxidants, with density equal to rolled anodes. Free technical publications available at your OFHC Anode distributor or from AMCO Technical Service Section will help you to obtain *more usable copper per pound of anode.*

Thinner, more uniform initial deposits requiring minimum buffing mean ***better plating mileage.***

AMCO DIVISION

American Metal Climax, Inc.

61 Broadway

New York 6, N. Y.

SPOTLIGHTING Finishing Progress

Dr. Nelson F. Murphy, Research Professor of Chemical Engineering, Virginia Polytechnic Institute

Bright Nickel Baths

In spite of developments in organic brighteners for nickel baths, there is still considerable use of the cobalt bath for producing bright, glossy finishes with good appearance and protective power. A recent report by A. Chaybany[1] describes some of his observations and studies on the effect of impurities in this bath.

During the war years, in Paris, the only nickel solutions available were considerably contaminated, especially with copper sulfate. The anodes also contained copper.

Electrical purification was only possible in acid solution, and these solutions had to be neutralized before use in any other bath.

A chemical method was developed using sodium thiosulfate to reduce the copper to the cuprous form. Then ammonium thiocyanate was added to precipitate the insoluble cuprous thiocyanate in the presence of sodium hydrosulfite, which was added to keep the solution reducing. After filtration, the excess reagents were removed by treatment with permanganate solution until a slight color persisted. This color was then removed by hydrogen peroxide, being careful to avoid an excess. It is possible that cobalt also may be removed by this treatment.

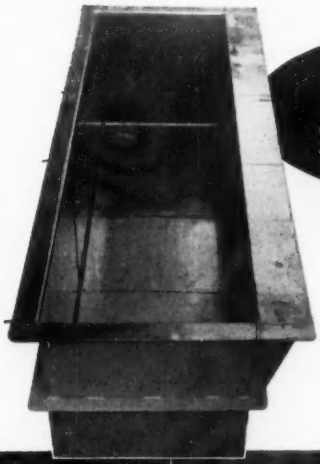
The author suggests a bath having the following composition: Nickel sulfate·$7H_2O$, 120-300 gm./l.; ammonium sulfate, 20 gm./l.; sodium sulfate, anhydrous, 100 gm./l.; potassium bromide, 1-5 gm./l.; boric acid, (if desired), 20-40 gm./l.

Potassium bromide is preferred over chlorides since the chlorides appear to possess gloss-destroying properties. Whatever brightening agents were used had to be increased to counteract the effects of the chlorides. The attack on the anodes can be regulated in other ways.

The above bath was operated cold, at a current density of 9.3 a.s.f. After an hour, the following zones were observed, in order of decreasing current density: a burned zone, a very bright zone, a dull band, a very bright band, blackening in the hollows. The first burned band is controlled by changing the current density. The third band, (dull) is believed to be the result of the presence of trivalent elements, and disappears on the addition of reducing agents. The blackening in the hollows is believed to be caused by the presence of copper, and this too disappears when the copper is eliminated.

The author believes that cobalt

A TANK LINING FOR EVERY SOLUTION



Amer-Plate®
PVC TANK LINING

Whether your plating and processing tanks are steel, concrete or wood, Amer-Plate can protect them indefinitely against corrosive solutions. Amer-Plate is a dense thermoplastic sheet made from high polymer vinyl chloride resins molded under high pressure and temperature.

- **It is unaffected by strong acids and oxidizing materials.**
- **It is non-toxic in food and beverage service.**
- **It is impervious to diesel oil, sour crude, aliphatic petroleum hydrocarbons.**
- **It will withstand hard chrome liquor to 160°F.**
- **It is resistant to highly corrosive salts.**
- **It resists alkalis including 50% caustic soda.**
- **It is insoluble in aliphatic alcohols, glycol and glycerine.**

Amer-Plate adheres not only to steel but also to concrete or wood without costly metal interlining. It is ideal as a membrane under acidproof brick construction. Amer-Plate is also supplied with a T-ribbed back for casting into place in new concrete tanks. Applicators are strategically located throughout the U.S. and Canada.

Amercoat® CORPORATION 117

Dept. EB, 4809 Firestone Boulevard, South Gate, California

Evanston, Illinois • Kenilworth, New Jersey • Jacksonville, Florida • Houston, Texas

For more data circle 334 on Postpaid Card

exists in this bath in colloidal form, basing his belief on the slow rate of formation from the anode and the turbidity of the bath (which may also be caused by iron).

The active brightening agent seems to be formed as the bath is electrolyzed. After the bath has remained unused for some time, it loses its brightening power, requiring a period of working before the properties are restored.

The author proposes that the colloidal material is formed at the anode as a hydrosol, and the colloidal particles may coagulate upon the addition of sodium sulfate, being thus eliminated. Iron acts in a similar manner.

A further interesting result of the author's studies is his proposal for the use of ethylene diamine in place of ammonia for co-deposition of copper and nickel as a bright plate. The proposed formulation is as follows: double nickel salts: 200 gm./l.; ethylene diamine sulfate: 75 gm./l.; potassium bromide: variable; copper sulfate ($?H_20$): 0.5-1.0 gm./l. The bath is made alkaline by the addition of ethylene diamine base until a violet color develops. The bath is operated hot.

The author emphasizes the fact that in his

SOME MEN ARE LIKE BLISTERS . . . THEY DON'T SHOW UP UNTIL THE WORK IS DONE!
ALKALI IKE
. . and you may be sure that your paint stripping job will be more efficiently done (and without blisters) when you use--
APEX "407" STRIPPER
This powdered, alkaline composition is designed for removal of Epoxy and Phenolic resin finishes, as well as light formations of rust and oxidation from steel parts.
Your Inquiry Will Be Appreciated!
Apex ALKALI PRODUCTS CO.
A complete line of Cleaning Compounds for the Metal Finishing Industry
Main and Rector Streets • Philadelphia 27, Pa. • IV 3-3939
SYRACUSE BOSTON DETROIT ATLANTA PITTSBURGH WEST HARTFORD
For more data circle 335 on Postpaid Card

EXOLON ABRASIVES

Rotomatic + Finishing =

BETTER FINISHES FASTER AND AT LOWER COSTS

Coruloy A

Deburred without changing surface finish in 1 minute with No. 14 abrasive, 480 per hour.

Machining burrs removed in 4 minutes with No. 4 abrasive, 240 per hour.

Burrs removed with No. 4 abrasive in 4 minutes, 240 per hour.

ROTOMATIC Finishing Machine
manufactured by Roto-Finsh Co.

A Modern Abrasive must team with Modern Equipment to meet the demands of Modern Metal Finishing

One, two, four, eight and sixteen spindle machines are now available in the Rotomatic series. After a part is attached to a spindle, it is rotated in Exolon abrasives, usually in the #4 to #14 size range, which have been conditioned by special compounds to form an abrasive slurry. The spindle indexes through the abrasive slurry returning to the operator's station.

EXOLON abrasives are produced from solid fused aluminum oxide made under carefully controlled conditions in electric arc furnaces. This hard, tough abrasive is carefully shaped and sized and provides speedy uniform finishing results.

Write today for detailed information.

The EXOLON Company

943 E. NIAGARA ST. TONAWANDA, N. Y.

Manufacturers of SILICON CARBIDE *and* ALUMINUM OXIDE ABRASIVES

For more data circle 336 on Postpaid Card

opinion the presence of the chlorides in the bath lowers the corrosion resistance of the nickel plate.

REFERENCE

(1) Chaybany, A. "Some Investigations into Bright Finishing in Nickel Baths and the Influence of Impurities," *Metal Finishing Journal 5*, August, pp. 263-268 (1959).

Surface Treatment and Finishing of Aluminum and Its Alloys. By S. Wernick and R. Pinner. Published by Robert Draper, Ltd., 85 Udney Park Rd., Teddington, Middlesex, England. Second Revised Edition. 607 pages. Price, $13.00 plus 25 cents postage.

A comprehensive and up-to-date review of all available processes for surface treatment and finishing of aluminum and its alloys.

This second edition contains a great deal of new matter: descriptions of recent types of chemical polishing solutions; developments in the control of anodizing processes; new sealing and dyeing techniques; and new testing methods.

A complete text on finishing of aluminum, it includes chapters on mechanical surface treatments and finishes, chemical conversion coatings, chemical polishing, anodizing, hard anodizing, organic finishing, electrodeposition on aluminum, and many others.

for AIRLESS
paint spraying and coating
GUNJET
No. 22HPSSTC
GunJet®
with
TUNGSTEN CARBIDE
valve seat and needle
•
STAINLESS STEEL
body and cap
•
TEFLON packings
for efficient, trouble-free performance
Here's the gun designed in detail for better, trouble-free performance. Needle cleans seat orifice automatically. For use at pressures from 400 to 2,000 psi. Complete choice of interchangeable orifice tips in all spray patterns, capacities and materials.
SPRAYING SYSTEMS CO.
3229 Randolph Street • Bellwood, Illinois
FOR INFORMATION WRITE FOR BULLETIN 95
For more data circle 337 on Postpaid Card

NOW YOU CAN PROCESS YOUR ALUMINUM FASTER AND MORE ECONOMICALLY

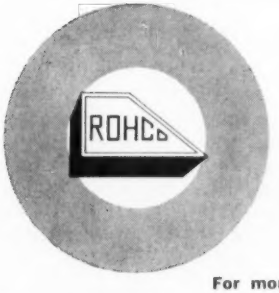
. . . with Something Special

RODIP AL-50 . . . a new single-dip, fast-acting chromate treatment which gives excellent corrosion protection for aluminum and its alloys. It provides an excellent base for bonding of paint and also has superior abrasion resistance compared to similar products.

NEW—an original formulation, AL-50 contains a remarkable new catalyst which is responsible for its superior characteristics.

MORE ECONOMICAL—a powder product which costs less per pound, thus saving on make-up as well as operating costs.

COLOR CHOICE—the color of the film may be varied from light iridescence to a golden brown. A clear film can be obtained with a hot water leach.



Order your RODIP AL-50 from your nearest ROHCO Representative, now! Immediate delivery from 17 stockpoints in the U. S. and Canada.

R. O. HULL & COMPANY, INC.

1304 Parsons Court • Rocky River 16, Ohio

The RIGHT START . . . a BETTER FINISH

For more data circle 339 on Postpaid Card

finishing clinic

Wood Grain on Metal

Question: *We are manufacturers of metal kitchen cabinet units. It is our understanding that it is possible to "Paint" a wood-grain finish on properly prepared metal and we would very much like to communicate with a manufacturer who could supply us with the needed materials for such finishing. Could you help us locate one or more such sources?*

M. R.

Answer: Manufacturers of wood grain finishing equipment and finishing material are listed in the PRODUCTS FINISHING DIRECTORY under the heading, "Graining Plates, Equipment" on pages 104 and 105.

★ ★ ★

Anodizing and Dyeing Aluminum

Question: *Can you supply me with any information on the subject of anodizing and dyeing of aluminum with particular reference to the nameplate business?*

E. J. M.

Answer: We are forwarding with this letter a copy of the booklet, "Finishes for Aluminum" published by Reynolds Metals Company.

An article published in the April, 1951, issue of PRODUCTS FINISHING entitled "Metal Etching and Anodizing in Color" discussed anodizing and dyeing. Unfortunately, we do not have additional copies of this article still available. We discuss this subject further, however, in the article, "Techniques for Coloring Anodized Aluminum," beginning on page 24.

★ ★ ★

Filling Zinc Base Die Castings

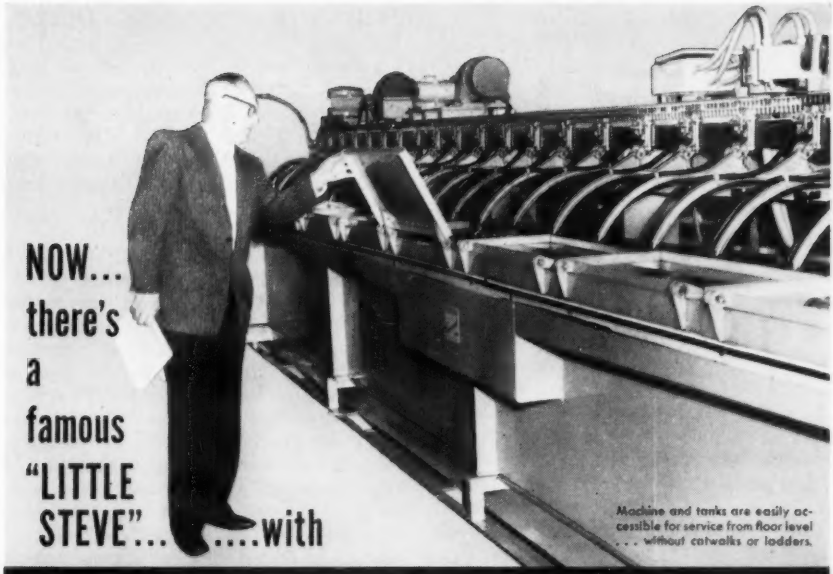
Question: *We have a problem concerned with the painting of zinc base die castings.*

A small percentage of these parts have pin-sized blow holes on the surface which must be filled before painting. The filler must withstand a temperature of 250 deg. F. for ½ hour, the baking temperature of the paint, and should be capable of easy application.

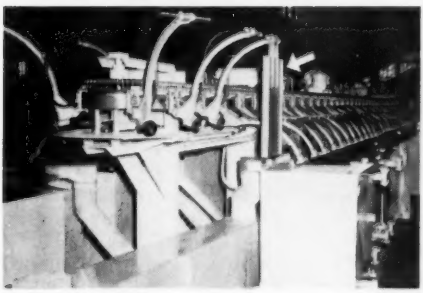
As yet we have been unable to locate a suitable filler, and would appreciate your advice, and, if possible, recommendation of a suitable supplier.

A. R. T.

Answer: A number of paint manufacturers produce materials which comply with the specifications outlined. Many of these companies are listed in the PRODUCTS FINISHING DIRECTORY under the classification "Primers" on pages 176 to 179.



VERTICAL LIFT!



Rack size and distance of lift shown by metal plate.

- Offers all the economies of automatic plating on limited and medium-volume operations.
- Permits use of narrower-width tanks for rack plating, thereby reducing space requirements.
- Features smooth, dependable operation and proven design simplicity for which Stevens equipment has long been famous.
- Provides complete application flexibility for electroplating, anodizing, phosphating and other dipping and coating processes.

"Little Steve" in the new, vertical lift model, with the traveling hump cam action, will become an important member of your production plating team. Investigate Stevens' low-cost, automatic plating equipment today!

Remember—when you go *automatic* . . . go **STEVENS!**

frederic b. **STEVENS,** inc.

DETROIT 16, MICH.

BUFFALO CHICAGO DETROIT CLEVELAND
DAYTON NEW HAVEN INDIANAPOLIS SPRINGFIELD (OHIO)

For more data circle 340 on Postpaid Card

Finishing Clinic . . .

Protecting Threads During Galvanizing

Question: *In the process of having some of our filter housings galvanized, we ran into the difficulty of getting the galvanize on the threaded portions of the filter housings. We need some material or method to coat these threads or plug the openings satisfactorily. The coating or plug must be easy to remove later, to eliminate the job of reworking the threads after the galvanizing.*

F. E. C.

Answer: Have you considered the possibility of using electroplated zinc, electroplated cadmium or electroplated tin rather than hot-dip galvanize as a finish for your filter housings? The thickness of electroplated coatings will not be as great as that produced in the galvanizing process, but a sufficient thickness of metal can be deposited so that your filter housings will not corrode in service.

Since the thickness of the electroplated coating is so much less, the problem of a slight buildup on threads should not be serious. If the small amount of electroplated metal that gets on the threads is objectionable, it is much easier to use mechanical thread protectors for plating than it is for galvanizing, since the temperature of the former method is lower.

If your engineers feel that service requirements make necessary the application of a thick coating by hot dip galvanizing, you can secure a putty or filler which can be used to protect the threads.

If you wish to consider the possibility of using electroplating rather than galvanizing as a finish, you can obtain complete information on the process and characteristics of the coating from any of the companies listed under the heading, "Plating and Anodizing Equipment" on page 152 of the PRODUCTS FINISHING DIRECTORY.

Information on hot dip galvanizing and associated techniques may also be obtained from the companies listed on page 103 of the PRODUCTS FINISHING DIRECTORY under the heading, "Galvanizing Equipment and Supplies."

★ ★ ★

Non-Flammable Solvent

Question: *We are interested in securing a non-toxic and non-flammable spraying method or solvent so as to be able to spray white testing pigment such as the Sno-Flake White that is produced by the Thompson, Weinman Company.*

At the present time, we are using a lacquer thinner which, of course, is highly explosive even though it allows us to spray the material in a satisfactory manner on the weld seams that are to be tested. We have tried boiled naptha solvents, a latex dispersing solution such as Tamol, without any good spray results that will enable us to deposit a uniform cover of this white testing pigment.

Our first interest would be to find a solvent that, of course, would be non-explosive, if that were possible. However, we would settle for a solvent that would have a lower flash point than that of lacquer thinner.

R. V.

Answer: Under separate cover, we are forwarding you a copy of the PRODUCTS FINISHING DIRECTORY in which you will find manufacturers of various paint thinners and solvents listed on pages 212 and 213. Certainly, many of these companies will be able to recommend a material to answer your needs.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Watch for the 1960 PRODUCTS FINISHING DIRECTORY Coming soon!

UNIFORM HIGH QUALITY

PRODUCTION PROVED

anodizing dyes

EXCELLENCE THROUGH EXPERIENCE

TECHNICAL SERVICE

EATON CHEMICAL *and Dyestuff Company*

Established in the year 1838

DETROIT • 1490 Franklin Street • WOodward 2-5216

TORONTO • 162 Queen's Quay East • EMpire 8-8685

WINDSOR • 314 Giles Boulevard East • CLearwater 3-6363

For more data circle 341 on Postpaid Card

new Equipment, Materials, Processes

Polishing, Buffing, Degreasing, Cleaning, Barrel Finishing, Plating, Anodizing, Phosphatizing, Baking, Vacuum Metallizing, Chromate Coating, Paint Finishing, Waste Treatment.

Rotary-Shelf Lab Oven

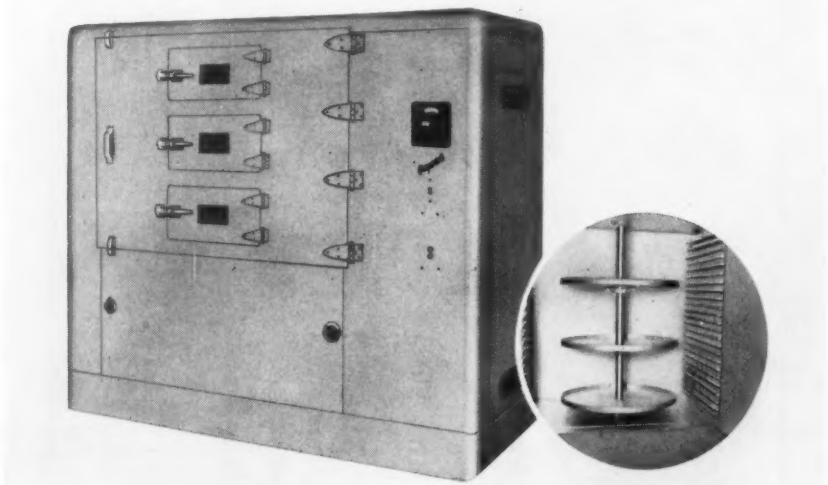
An oven recently introduced by Despatch Oven Co. makes it possible to heat every sample in the oven uniformly. This model maintains uniformity of temperature throughout the chamber within plus or minus 1 deg. C. By rotating the shelves, each sample is exposed to *exactly* the same heat.

The maker recommends that the shelves be rotated manually for temperatures up to 300 deg. F. For higher temperatures (up to 850 deg. F., the maximum) motor and gear-reduction drive provide constant shelf rotation.

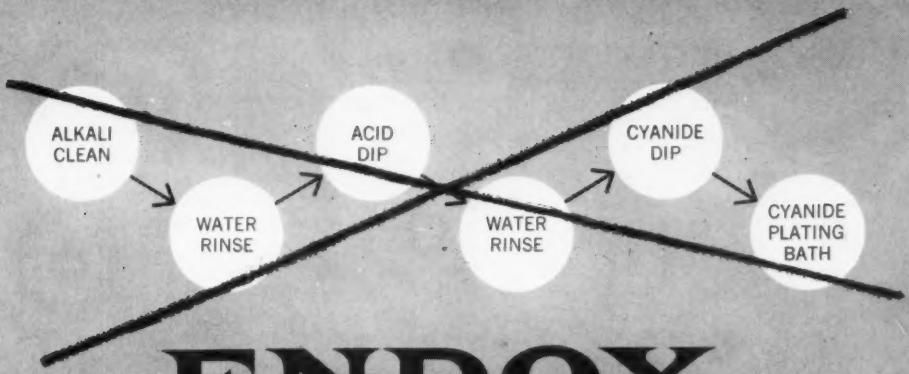
The oven can be heated by gas, electricity or oil. Forced-convection circulation, horizontal air flow.

Manufacturer: Despatch Oven Co., 619 S.E. Eighth St., Minneapolis 14, Minnesota.

For more data circle 1 on Reader Service Card



Despatch Lab Oven has small doors within the main door to permit easier removal of products from each of the rotary shelves. Inset at right shows the rotary shelves.



ENDOX

the PATENTED alkaline deoxidizing process prepares steel for plating in one simple step!

In one, simple electrolytic operation, Endox completely removes rust, scale, smut, soil and oxides from steel and activates it for plating. On work that has been precleaned to remove heavy solid soils, no alkali cleaner, acid dip or cyanide dip are required. Endox replaces them all and gives superior plate adhesion, especially on difficult-to-activate alloy steels. Acid attack and acid fumes are eliminated by use of this room-temperature, alkaline process.

Endox cuts rinse water volume (and rinse water waste treatment costs) way down since there's only one brief rinse in the entire cycle prior to plating in a cyanide plating bath. Endox solutions contain sodium cyanide and are compatible with all cyanide plating solutions.

Endox also produces excellent results prior to acid plating baths. It has solved many problems involving adhesion of nickel plate to malleable iron and alloy steel parts which are later subjected to stress. Prior to acid plating, however, the alkaline Endox residue should be neutralized by a dilute acid dip or "sour rinse".

Endox can be used in both barrel and rack plating lines. Endox solutions are very economical to use because they can be maintained indefinitely by periodic analysis and replenishment, just like a plating bath.

Enthone pioneered alkaline deoxidizing and derusting and first introduced such techniques in 1951. In recognition of this, Patent No. 2,915,444 has been awarded to Enthone. Benefit from our long experience in alkaline pickling: write for literature on Endox and the name of your nearest Enthone representative who will be glad to process sample parts for you. Enthone, Inc., 442 Elm Street, New Haven, Connecticut.

ASARCO

ANOTHER PRODUCT OF Enthonics RESEARCH

ENTHONE

A Subsidiary of American Smelting and Refining Company

For more data circle 342 on Postpaid Card

Oscillating-Arm-Type Buffing Machine

An oscillating-arm-type machine which provides a method for automatically buffing or polishing parts which have obstructions that prevent complete rotation has been developed by Acme Manufacturing Company.

The machine is suitable for buffing parts such as coffee pots with spouts or ratchet-type wrench heads with handles that prevent complete rotation of the part in contact with the buffing wheel; other parts with handles; large butt hinges; plumbing and boat hardware parts with one side obstructed; and stampings or die castings with radius portions that require buffing.

Basically the machine is an Acme E-10 semi-automatic machine equipped with an air cylinder advance and an oscillating-arm fixture. Parts can be mounted on an arbor with a locator and square drive. Then the arbor and part assembly are positioned in the oscillating-arm unit by an air-powered tailstock. Other special types of part chucking arrangements can be provided to suit the part requirements.

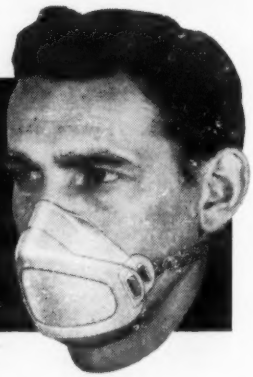
Parts positioned on the arm are advanced by an air cylinder control into contact with a buffing wheel mounted on a conventional double-end buffing lathe or an adjustable lathe. Then a pushbutton initiates a timed sequence of arm oscillation to give the desired wheel - contact time.

The oscillating-arm unit can be

(continued on page 78)

FLEX-A-FOAM
DUST MASKS

Here's everything that management and worker alike could possibly want in a dust respirator!



1. **Form-fitting design:** Self-adjusting to any size and shape of face without pressure or irritating discomfort.
2. **Attractive styling:** Smartly designed to suit the most discriminating wearer.
3. **Filtering efficiency:** Filters non-toxic dusts 100 times smaller than the eye can see.
4. **Easy-breathing comfort:** Easier to breathe through and talk through than an ordinary pocket handkerchief.
5. **Feather-like weight:** Weighs only 1 ounce complete.
6. **Simplicity and economy:** Only 4 tough, long-wearing, inter-locking parts — all washable. Pure latex filter outwears throw-away type more than 100 to 1.

No wonder FLEX-A-FOAM is the one dust respirator workers welcome and WEAR!

Sample only $1.45 postpaid (Industrial price only)

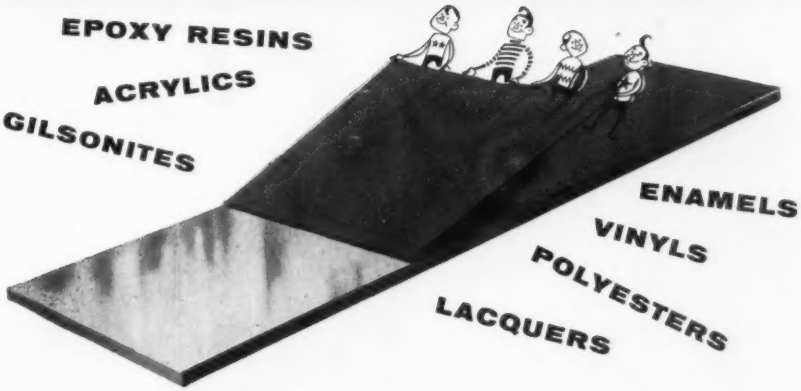
FLEX-A-FOAM DUST MASK®

FLEXO PRODUCTS, INC.
Westlake, Ohio

For more data circle 343 on Postpaid Card

Another new development from Detrex:

A New Line of Paint Strippers- One For Every Stripping Need!



Recover all of your rejects—improve overall production.

The Detrex Research Department, long aware of the fact that no single stripper can efficiently remove all varieties of paints, has developed a line of strippers that guarantee superior results on the paints for which they were developed.

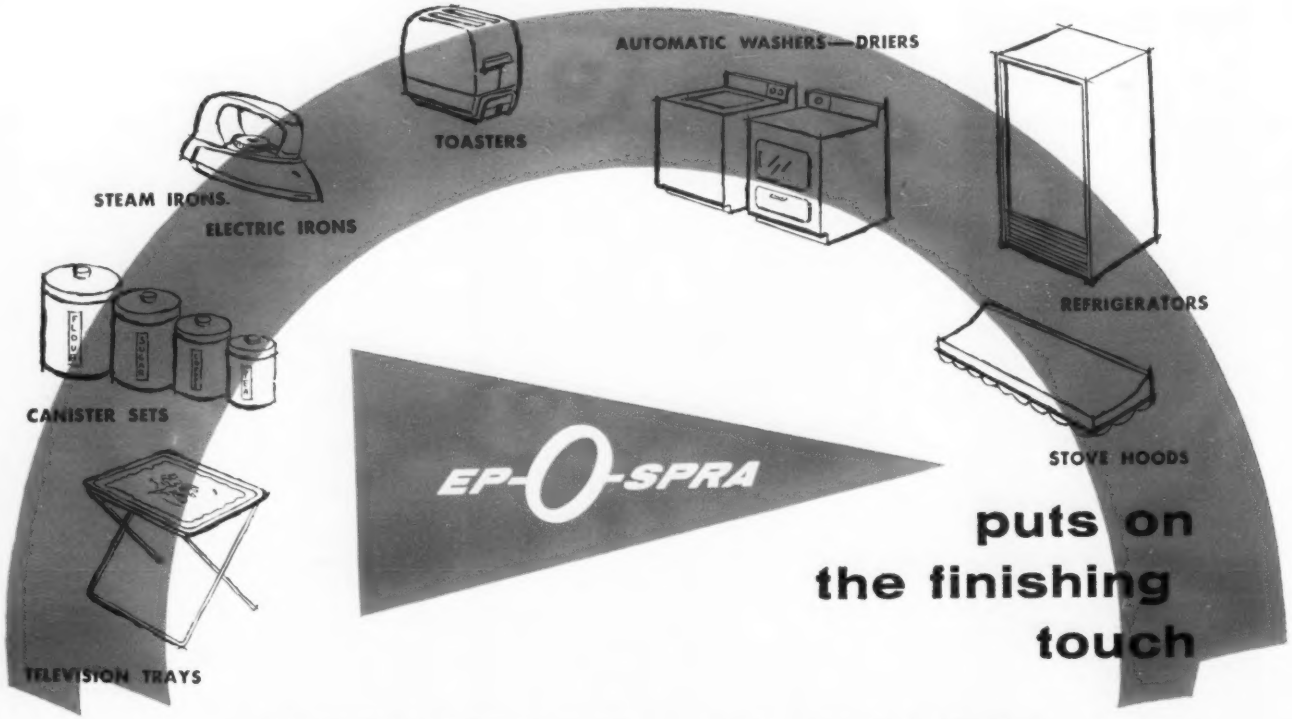
Your Detrex service engineer is your professional consultant. You can't afford to pass up his expert analysis of your stripping operation that includes; laboratory analysis of the paint you are using, type of equipment available to do the job and your allowable stripping time.

You can be assured, the proper analysis and recommendation will result in important savings and superior stripping in every case.

DETREX CHEMICAL INDUSTRIES, INC.

Box 501, Dept. PF-260, Detroit 32, Michigan

For more data circle 344 on Postpaid Card



Revolutionary new industrial finish
sprays on...stays on!
all metals! all colors!

Lowe Brothers Ep-O-Spra looks like special metal finishes but actually surpasses them for durability, economy and ease of application. Resists just about everything—heat, acid, impact and abrasion, to name but a few. Applies without elaborate preparation or special equipment. Check this typical report from a leading manufacturer of outdoor furniture:

"No apparent failure of Ep-O-Spra Brass after 175 day test in Fad-ometer which is equal to 2100 days of outdoor exposure during the months of June, July and August."

. . . and Ep-O-Spra is just as much at home on appliances, business machines, metal furniture, outboard motors, bicycles and kitchenware—in fact, almost any product made from treated cold-rolled steel and bonderized metal, or any polished metal surface.

For information and samples, just send the coupon. A Lowe Brothers finishing engineer will visit you and demonstrate how Ep-O-Spra fits into your finishing picture.

LOWE BROTHERS
INDUSTRIAL FINISHES

Quality unsurpassed since 1870

Style-tested paints for Home and Industry

REPRESENTATIVES IN:

Chicago, Ill.	Boston, Mass.
Jersey City, N. J.	Cleveland, Ohio
Pittsburgh, Pa.	Rochester, N. Y.
Dayton, Ohio	Columbus, Ohio
Milwaukee, Wis.	Indianapolis, Ind.
Cincinnati, Ohio	Detroit, Mich.
Springfield, Mass.	Philadelphia, Pa.

The Lowe Brothers Company
Dayton 2, Ohio

PF-2

☐ Please have my nearest Lowe Brothers Finishing Engineer call on me as soon as possible.

NAME_____

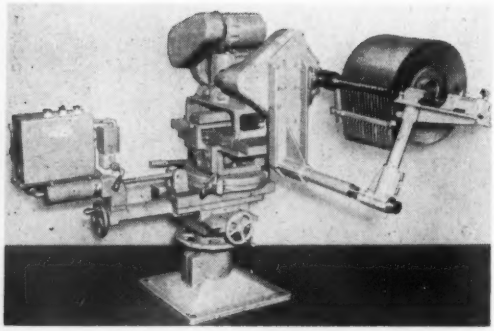
TITLE_____

FIRM NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

For more data circle 345 on Postpaid Card



Acme oscillating-arm-type buffing machine automatically finishes a wide variety of parts that have obstructions which prevent complete rotation during the buffing operation.

adjusted to give from zero to 360 degrees of oscillation and thus it meets a variety of part-finishing requirements.

Manufacturer: Acme Manufacturing Co., 1400 E. Nine Mile Rd., Detroit 20, Mich.

For more data circle 2 on Reader Service Card

Strainer for High-Pressure Lines

Spraying Systems has introduced a strainer built for use in high-pressure (up to 4,000 p.s.i.) fluid lines.

The strainer screen assembly provides a large area for fluid flow, is easily cleaned.

The unit is supplied in ¼-, ⅜- and ½-inch sizes, in a choice of four mesh sizes.

The stainless steel strainer is suitable for use in straining corrosive liquids. The manufacturer also recommends it for use in airless spray

High-Pressure Strainer

To page 82→

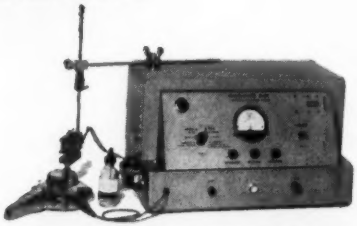
Testing Plating Thickness?

15 Day FREE Trial

Guarantees

Satisfaction

OF THE



KOCOUR ELECTRONIC THICKNESS TESTER

You can easily and quickly determine the thickness of chromium, silver, tin, cadmium, zinc, brass, copper, nickel, lead, and other plating . . . direct readings . . . 90-95% accurate. Write for further information . . . no cost, no obligation. Ask for a demonstration or a 15-Day FREE Trial!

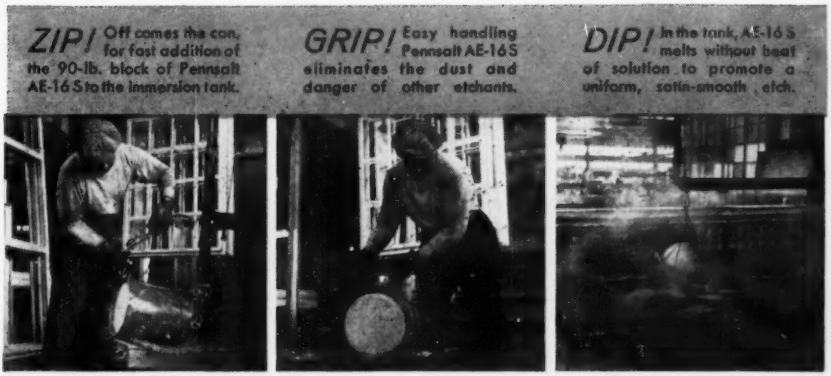
FREE! Evaluation of your application. Send details including plating/basis metal & thickness range.

KOCOUR CO.

4814 S. St. Louis Avenue

Chicago 32, Illinois

For more data circle 346 on Postpaid Card


ZIP! Off comes the can, for fast addition of the 90-lb. block of Pennsalt AE-16 S to the immersion tank.
GRIP! Easy handling Pennsalt AE-16 S eliminates the dust and danger of other etchants.
DIP! In the tank, AE-16 S melts without heat of solution to promote a uniform, satin-smooth etch.

New solid etchant for aluminum

non-scaling, dustless, easy to handle

Here's a brand new way to prepare etching solutions for putting a uniform satin finish on any aluminum alloy. It's Pennsalt's new AE-16 S aluminum etchant . . . economically priced, and in *solid* form for easier handling and better performance.

AE-16 S is supplied in 90-pound blocks, packed in light metal containers that open readily with hand tools. Add AE-16 S to your immersion tank, and it melts with minimum agitation, providing a uniform concentration of alkali.

And, there's no dust, no heat of solution to upset tank temperature balance—no splatter from additions—none of the drawbacks of flake etchants. You get a clean, even etching job with AE-16 S, with uniform hide. Afterwards, tank cleaning is easier, because AE-16 S leaves no scale or sludge. Pennsalt's AE-16 S has been field-tested by leading aluminum fabricators and producers.

New AE-16 S is one result of Pennsalt's long experience and basic position in alkalis. This same experience is applied in Pennsalt service, to help you get best possible use of your metal processing materials and equipment. Write Dept. 231 or call for complete facts and figures.

...a better start for your finish®

Pennsalt Chemicals
ESTABLISHED 1850

PENNSALT CHEMICALS CORP.
East: Three Penn Center, Phila. 2, Pa.
West: 2700 S. Eastern Ave. Los Angeles 22, Calif.

For more data circle 347 on Postpaid Card

ADM'S NEW FAST AIR-DRY RESIN...SPEEDS

Aroplaz 6006-X-50

Pure Alkyd RESIN

AROPLAZ 6006 breaks through a serious bottleneck in manufacturing: the time it takes conventional industrial finishes to dry. This new fast-air-drying resin sets up tack-free in six minutes*. . . yet it offers the outstanding performance of pure alkyd enamels.

Paints based on AROPLAZ 6006 set up so fast the problem of dust, lint, or other contaminants settling on a tacky surface is virtually eliminated. Tape time is substantially reduced. Finished products can be handled and moved quickly, speeding products through the paint shop.

AROPLAZ 6006-based paints set up with the speed of lacquer, yet their high solids content allows a 1 mil-thick film in just two passes of a spray gun.

Resistance—The high-gloss surface of an AROPLAZ 6006-based paint is highly resistant to marring. Withstands water, alkali, and solvents, such as gasoline, extremely well.

PRODUCTS THROUGH YOUR PAINT SHOP

Versatility—Although AROPLAZ 6006 is designed for industrial air-dry finishes, it cures fast at force dry and normal baking temperatures without urea or melamine modification. Compatability with alkyds, other resinous materials, and aliphatic solvents is excellent. Because of this, enamels can be tailored to meet many diversified requirements.

AROPLAZ 6006 is a light colored resin, with the color retention normally associated with pure short oil soya alkyds.

Application—AROPLAZ 6006 is ideally suited for a broad range of industrial applications where extremely fast air-dry and top performance are required. Tests indicate it is applicable for trucks, trailers, auto refinishing, farm implements, and construction equipment; appliances, cabinets, machinery parts, metal furniture and toys. AROPLAZ 6006 is especially good for power lawn mowers, factory boat finishes, and motor housings, and many more applications.

Investigate the time-and-money saving advantages of AROPLAZ 6006-X-50. Ask your paint supplier about coatings made with new ADM AROPLAZ 6006.

Passes 500 gram zapon, 1.5 mil wet film, 77° F, 50% Relative Humidity

Archer-Daniels-Midland

Resin Division

748 Investors Building
Minneapolis 2, Minnesota

For more data circle 348 on Postpaid Card

CRYSTAL CLEAR!

Daconite

5600

WATER WHITE LACQUER

Daconite 5600 saves time and money on production, makes your product sell faster! It is a ready-to-spray lacquer, (Alkyd fortified) recommended for use over blond stains, light fillers, light natural woods, Masonite, metal.

5600 has excellent cold check resistance. It produces a finish of exceptional paleness and color retention quality. Will not ring from alcohol, water or hot dishes. Highly resistant to scuffing, scratching.

5600 has been fully tested. It has the time and money saving features you demand for production line economy and superior finished results.

Write on your letterhead for specifications sheet and testing samples.

JAMES B. DAY & COMPANY

1872 CLYBOURN AVE., CHICAGO 14, ILL.

fine production finishes for industry since 1906

For more data circle 349 on Postpaid Card

painting lines. Complete information is given in Data Sheet 8310, available from the manufacturer.

Manufacturer: Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

For more data circle **3** on Reader Service Card

★ ★ ★

Flexible Finishing Wheel

A Grind-O-Flex polishing wheel recently introduced by Merit Products, Inc., has improved flexibility and ability to polish contoured parts.

Greater flexibility results from "slashing" the abrasive cloth leaves into thin strips. As the wheel rotates, these abrasive "fingers" mold to irregular shapes and get down into depressed areas that formerly could not be reached with this wheel.

Grind-O-Flex wheel with leaves cut into thin strips gets down into contours. Inset shows how leaves are cut to improve flexibility.

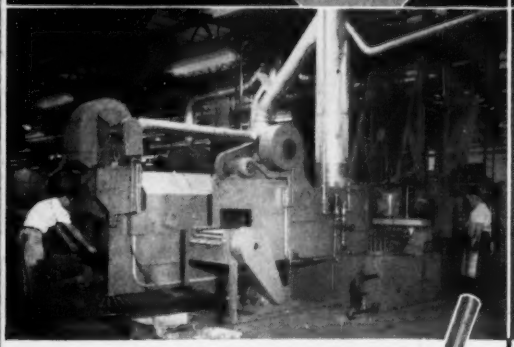
Typical applications: satin finishing aluminum and stainless steel parts.

Manufacturer: Merit Products, Inc., 3691 Lenawee Ave., Los Angeles 16, California.

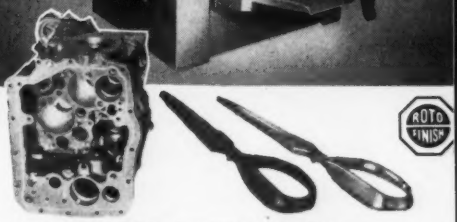
For more data circle **4** on Reader Service Card

For more data on advertisement on opposite page, circle 350 on Postpaid Card ——→

CALL ON **RANSOHOFF ROTO-FINISH** FOR *Engineering* FINISHING RESULTS



THIS AUTOMATED CLEANING AND FINISHING SYSTEM installed at Elco Tool & Screw Company, Rockford, Illinois removes wire coat from blanks; and washes, rinses, and dries 90,000 lbs. of finished nuts, screws and bolts per day. This system cleans tote pans automatically at the same time. Whether your production requirements are large or small, this is the kind of finishing *result* you can expect from Ransohoff.



A NEW VIBRATORY FINISHING MACHINE, the Vibratron, was designed by Roto-Finish to finish cast; forged and machined parts with shielded and hard-to-reach surfaces. It cleans, deburrs, descales, forms radii and fine finishes in very short time cycles. If desired, the Vibratron can be equipped to load and unload automatically.

THERE'S NO ROOM FOR GUESS WORK OR COSTLY HAND FINISHING TODAY. It's simply a matter of designing the right equipment and developing the right processing techniques for the job. Ransohoff/Roto-Finish, with a combined experience of 62 years in the finishing field know-how to solve your finishing problems quickly—efficiently—and economically.

Small wonder so many manufacturers, large and small, rely on Ransohoff/Roto-Finish to engineer finishing *results* with equipment and techniques they can depend on!

Get the Complete Story

Write for Ransohoff literature or request the Vibratron folder, today.

RANSOHOFF/ROTO-FINISH

20 NORTH FIFTH STREET
HAMILTON, OHIO

Bright Copper Plating Process

A bright copper cyanide process trade named Copper-Lume has the following characteristics: produces smooth, bright deposits over a wide temperature and current-density range; deposits have good metal distribution; ease of operation and control. Deposits can be buffed easily, if required.

Copper-Lume bath constituents can include either potassium salts, a mixture of potassium and sodium salts, or sodium cyanide only. The deposits do not require activation before subsequent nickel plating.

In many respects, Copper-Lume is similar to H-VW-M's Nickel-Lume.

Manufacturer: Hanson-Van Winkle-Munning Co., Matawan, N. J.

For more data circle **5** on Reader Service Card

★ ★ ★

Electronic Thickness Gage

Coating thickness can be measured quickly and accurately with an electric micro-gage and comparator called the Elcotector. In addition to measuring metallic and non-metallic coatings on any dissimilar bases, the unit will also compare the hardness and grades of metals and other materials.

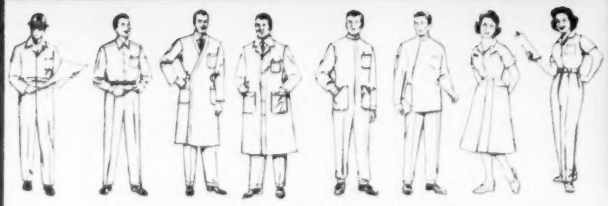
Elcotector: checks thickness, hardness

The unit operates on the eddy-

(continued on page 88)

the right work clothing for the job . . .
from WORKLON®
America's first resource
for special purpose industrial apparel

YOU SAVE up to 93%*
*Replacement costs compared to ordinary work-clothes when used in corrosive areas.



You can depend on Worklon for the precise apparel to meet your most precise job requirements. Choose from the nation's finest selection of ACID- and CAUSTIC-RESISTANT, LINT-FREE and STATIC-FREE garments for both men and women. Investigate Worklon quality apparel of Dacron, Dynel, Orlon and Nylon. Write for complete information including laboratory reports and test data. All FREE — no obligation.

WORKLON® NEW YORK • LOS ANGELES
Dept. PF-20, 253 West 28th Street, New York 1, N.Y.

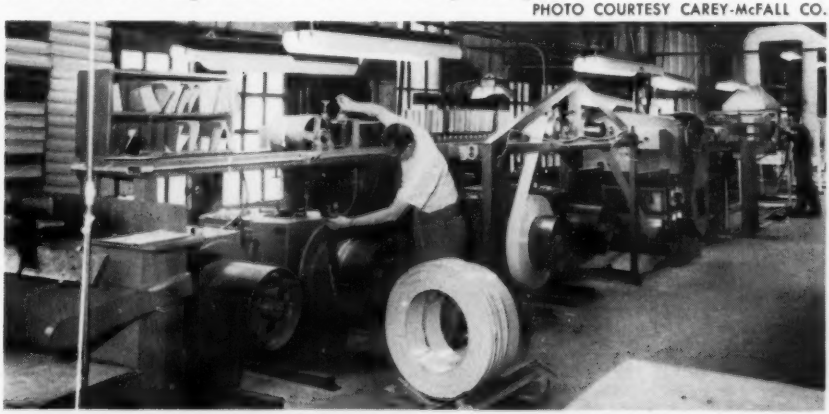
For more data circle 351 on Postpaid Card

Cosden Roller Coating Finishes Surpass Carey-McFall's Tough Standards For Blind Stock

Consider the requirements a finish must meet to be acceptable to Carey-McFall Co. for use on venetian blind stock. It must offer superior adhesion, formability, durability, beauty—plus absolutely trouble-free application at high strip speeds. Problems simply can not be tolerated on a continuous roller coating system with curing schedules of 15-35 *seconds*. Now consider the fact that Carey-McFall has met this challenging combination of requirements with Cosden one-coat roller coating enamels and vinyls—enamels for the slats and vinyls for the deep-drawn and roll-formed parts.

The point is this: if your product demands a quality roller coating finish, with a tough set of specifications, our service engineers can help you. You'll soon see why Cosden is rapidly becoming *the name* in roller coating finishes. Write today for product information.

PHOTO COURTESY CAREY-McFALL CO.



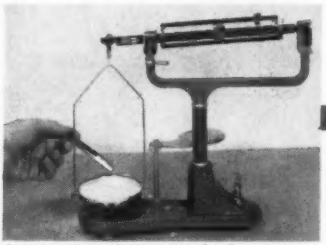
COSDEN PAINT COMPANY

BEVERLY NEW JERSEY

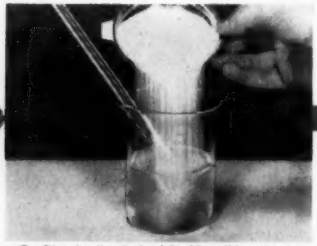
For more data circle 352 on Postpaid Card

Here's how you can save time, and mixing errors with either

New "Direct-Route" Method



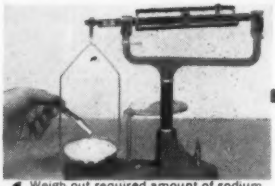
1 Just weigh required amount of sodium-copper or potassium-copper double salt.



2 Dissolve the desired double salt in water or plating solution.

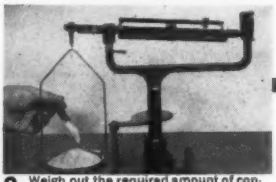
Laboratory demonstration shows how "direct-route" method saves time

Old "Indirect" Method



1 Weigh out required amount of sodium or potassium cyanide.

2 Dissolve the sodium or potassium cyanide in water.



3 Weigh out the required amount of copper cyanide.

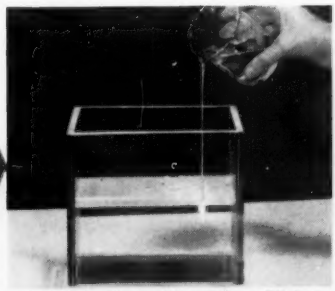
4 Add copper cyanide to water and make a slurry.

5 Dissolve the copper cyanide slurry in solution of sodium or potassium cyanide.

CALL DU PONT FOR ANY ONE OF THESE QUALITY PLATING PRODUCTS. You're assured of superior quality, dependable supply and expert technical service with plating chemicals from Du Pont... your reliable domestic source.

- **Sodium-Copper Cyanide Double Salt**
- **Potassium-Copper Cyanide Double Salt**
- **Copper Cyanide**
- **Potassium Cyanide**
- **All-purpose Cyanobrik® sodium cyanide (in briquette form)**
- **Cyanogran® M sodium cyanide (in granular form)**

reduce handling, avoid waste of Du Pont's Double Salts



3 Add directly to plating tank—no filtering necessary.

...avoids errors.

6 Add solution through a filter to plating tank.

SODIUM-COPPER CYANIDE
OR
POTASSIUM-COPPER CYANIDE

SAVE TIME AND REDUCE HANDLING...By using one Du Pont copper cyanide double salt instead of two separate chemicals, you eliminate several steps usually required to dissolve copper cyanide. Just weigh out the Du Pont double salt and dissolve it in water or plating solution. A "direct-route" process! (Compare old and new methods at left.)

AVOID WASTE AND MIXING ERRORS...because active ingredients are in the proportions usually required. This simplifies making and replenishing bath . . . prevents waste resulting from undissolved copper cyanide.

INCREASE CONVENIENCE AND SAFETY...With just one salt to dissolve you minimize handling steps. This means greater convenience—more safety.

Du Pont sodium-copper cyanide double salt and potassium-copper cyanide double salt are white, crystalline and readily soluble. They are made from ingredients of highest quality and purity —Du Pont copper cyanide, sodium cyanide and potassium cyanide.

SIMPLIFY CALCULATIONS...Balanced composition of Du Pont double salts makes it easy to determine amounts required for make-up or replenishment. (1 oz. potassium-copper cyanide double salt is equivalent to 0.26 oz. copper, or 0.37 oz. copper cyanide; 1 oz. sodium-copper cyanide double salt is equivalent to 0.29 oz. copper or 0.41 oz. copper cyanide.)

SODIUM-COPPER CYANIDE DOUBLE SALT

	SPECIFICATIONS	TYPICAL ANALYSIS
Copper	28.7% min.	29%
"Free" sodium cyanide	0.4 to 2.0%	1%
Lead	7 ppm. max.	Less than 1 ppm.
Sulfides (as sulfur)	10 ppm. max.	Less than 5 ppm.
Insolubles	0.01% max.	0.01%

POTASSIUM-COPPER CYANIDE DOUBLE SALT

	SPECIFICATIONS	TYPICAL ANALYSIS
Copper	25.8%	26.3%
"Free" potassium cyanide	1.25% to 3.0%	2.9%
Lead	7 ppm. max.	Less than 1 ppm.
Sulfides (as sulfur)	10 ppm. max.	Less than 5 ppm.
Insolubles	0.01% max.	Trace

Both potassium and sodium double salts are shipped in convenient moisture-resistant 100-lb.-net fiber containers.

For further information or Technical Service call your Du Pont distributor or your nearest Du Pont office, listed at left.

ELECTROCHEMICALS DEPARTMENT • SODIUM PRODUCTS DIVISION
E. I. DU PONT DE NEMOURS & CO. (INC.), WILMINGTON 98, DELAWARE

DISTRICT OFFICES:

BALTIMORE 2 . . . . . 321 Fallsway
BOSTON 10 . . . . . 45 Fourth Ave., Waltham 54, Mass.
CHARLOTTE 1 . . . 427 W. Fourth St.
CHICAGO 46 . . . . 7250 N. Cicero Ave., Lincolnwood
CINCINNATI 2 . . . 2412 Carew Tower
CLEVELAND 20 . . 11900 Shaker Blvd.
DALLAS 21 . . . 8510 Ambassador Row
DETROIT 35 13000 W. Seven Mile Rd.
LOS ANGELES 22 . Box 70, El Monte, Calif.
NEW YORK 1 . . . . . 350 Fifth Ave.
PHILADELPHIA 30 8 E. Lancaster Ave., Wynnewood
SAN FRANCISCO 24 . . . 1485 Bayshore Blvd.

Export Division, Du Pont Building, Wilmington 98, Delaware

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

For more data circle 353 on Postpaid Card

current principle by making use of the fact that the electrical characteristics of a coil are influenced in proportion to the conductivity of the sample.

Supplier: Supply Div., Ferro Corp., 4150 East 56th St., Cleveland 5, Ohio.
For more data circle **6** on Reader Service Card

★ ★ ★

Wet-Blast Machine

A wet blast unit that can be operated from a "sitting-down" position has been announced by Pressure Blast Mfg. Co., Inc. The Consol-Matic, as the unit has been designated, is designed for finishing small parts such as eyeglass frames, cuff links, sparkplugs and vacuum tube leads.

Two bays are provided at the operating station where work is loaded and unloaded. Moving blast guns, driven by air cylinders, are positioned at each bay. The operator places parts in either or both bays and depresses the foot lever. This begins movement and activation of the blast guns. A timer determines the length of blast time as well as the speed of gun oscillation.

The machine allows for the use of masks if decorative effects are desired. Positioning devices are provided for the blast finishing of parts such as sparkplugs or vacuum tube leads. Guns are individually movable, which adds to the flexibility of the unit.

The Consol-Matic operates on the aspiration system, which eliminates the need for a pumping mechanism in the blast circuit. Employing fine abrasives (up to 5000 mesh), the unit imparts

VIBRA-WASHER

...THE COMPLETELY NEW AUTOMATIC PARTS WASHER AND METAL CONDITIONING MACHINE

- Labor saving
- Automatic unloading
- For single or multi-stage operations
- No nesting of parts during cleaning or conditioning cycle
- Adjustable capacities to 10,000 lbs. per hour

The versatile new Simplicity VIBRA-WASHER, revolutionary machine for washing and conditioning of small metal parts, stampings and castings, employs a vibrating work carrier that automatically conveys parts through cleaning or conditioning bath. Solution is forced around parts, even into blind drillings and slots. In single stage, VIBRA-WASHER removes chips, oil and grease quickly . . . economically. In multi-stage, several units in line will provide cleaning, rinsing and phosphating, eliminating "between-stage" handling. Write today for Bulletin 107, to: Industrial Washer Division.

Simplicity
TRADE MARK REGISTERED

212 ENGINEERING COMPANY • DURAND 25, MICH.

For more data circle 354 on Postpaid Card

HOW ABOUT THAT, FIFI ? UNIVERTICAL'S "PHOSPHOR-BRITE" COPPER IS THE *BEST* DOGGONE ANODE FOR ANY ACID COPPER PLATING! *NO RUFF-RUFF PLATING, JUST SMOOTH & BRITE!*

Buy DIRECT – and SAVE!

You can't eat "Overhead" . . . so why PAY for it ?

Quality, Service and Performance at the RIGHT PRICE !

"ELECTRO-BRITE" COPPER *for BETTER* Cyanide Plating . . . We invite your inquiries on all other anodes ! . . . . . .

ROLLED - CAST - FORGED

TRY US AND SEE !

Call BR 3-2000

ask for Charlie Walker

SINCE 1932

UNIVERTICAL CORPORATION

14841 Meyers Road - Detroit 27, Michigan

For more data circle 355 on Postpaid Card

Consol-Matic Wet-Type Blasting Machine

fine, satin, chemically clean surfaces without heavy etching, stock removal or distortion.

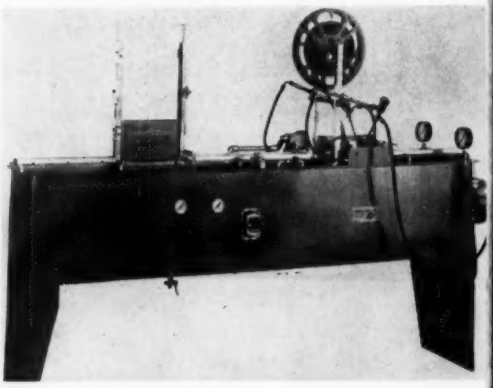
Manufacturer: Pressure Blast Mfg. Co., Inc., Manchester, Conn.

For more data circle **7** on Reader Service Card

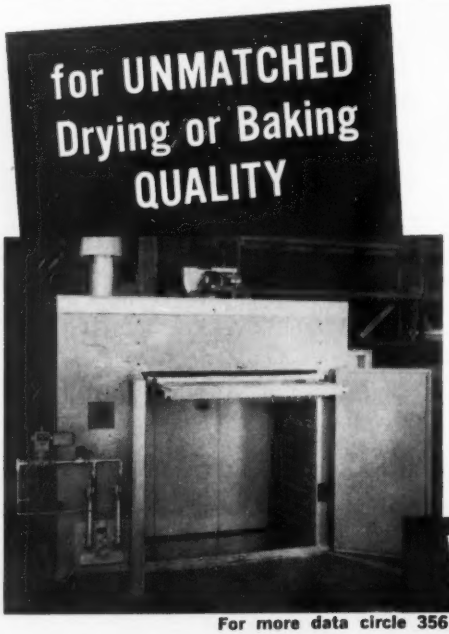
Specialized Spraying Machine

Conforming Matrix Corporation has developed a machine for accurately

(continued on page 94)



Conforming Matrix Model HD-2 Remote-Masking Spray Coater: 4000 per hour



YOUR BEST BET

ROCKWELL OVENS

Engineered to dry or bake finishes with closely controlled temperature uniformity and at most efficient production rate.

Made in standard cabinet, rack or truck types, single or multiple compartment — gas-, electric-, or steam-heated — or in special batch loading and conveyor types. Write for Bulletin 127.

W. S. ROCKWELL COMPANY
2900 Eliot St., Fairfield, Conn.

For more data circle 356 on Postpaid Card

DYNA-EMPIRE PLATEGAGE

MODEL D-873

precise plating thickness measurements from .0001 to .015" in a matter of seconds

In inspection and production—wherever precise plating thickness measurement is essential, the Dyna-Empire PLATEGAGE provides a rapid and simple means of determining the thickness of a plated or painted surface on ferrous base metals. These PLATEGAGE features assure production speed and ease of operation—laboratory accuracy • *Direct reading*—of plating or coating thickness from .0001" to .015" • *Precise measurements of any contour with specially designed probe tip* —inside or outside diameter (as low as 1/16" O.D. and ½" I.D. on contoured surfaces) of pipes or tubing and holes in stampings, and castings. • *Easy operation by unskilled operators* — one probe covers all measurements; no special scales to set up — no calibration curves needed. Read coating thickness directly on the meter. • *Non-destructive measurements*—no parts wasted in tests. • *Transistorized construction*—guarantees long operating life • *Completely portable—weight only 9 lbs.;* battery or line operated. • *No extras to buy*—unit complete with batteries, a universal probe to cover every measuring need and two thickness reference samples.

Fast and accurate direct thickness measurements of these platings: Silver, copper, nickel, chromium, cadmium, zinc, brass, tin, etc. on iron or steel base materials. Measurement of paint thickness on automobile bodies, refrigerator cabinets, transformer casings, iron or steel cans, etc.

Price $345.00 complete

DYNA-EMPIRE, INC. 1075 Stewart Ave., Garden City, N. Y.

For more data circle 357 on Postpaid Card

H-VW-M
SUPERLUME
THE PREMIUM BRIGHT NICKEL BATH

we admit it...there may be other baths as bright as H-VW-M Superlume

but

SUPERLUME

IS THE MOST DUCTILE AT HIGHEST LEVELLING

SUPERLUME

LEVELS BEST

Sure, it costs a little more than conventional bright baths—but no more than other baths that are almost as good as fast plating Superlume. Why not get the best! Write or call for full details.

H-VW-M

Progress in metalfinishing through advanced processes • equipment

Hanson-Van Winkle-Munning Company, Matawan, New Jersey • Offices in Principal Cities
Alert Supply Company is H-VW-M in the West • Los Angeles • San Francisco

For more data circle 358 on Postpaid Card

coating coaxial lead components by spray methods at rates up to 4,000 per hour.

A resinous composition, such as an epoxy compound, can be used to form a light-tight seal for selenium diodes and other small electrical and electronic components. Capacitors, fuses, resistors and other coaxial lead components also can be coated with a clear material that protects color-bands.

The coating is confined to the desired area by two accurately spaced traveling strips, while racks loaded with diodes move continuously through the spray station. The diodes, while in the racks, are spun so as to assure application of an even coating. The coating is accurately applied to only the diode and desired portions of its lead wires so as to prevent cracking of the coating if the wires are bent for insertion in a printed circuit board. There is no excess coating to interfere with soldering. The diodes remain in the racks for both the spraying and baking operations.

The spray coating is completely automatic. Racks carrying the diodes move through the machine and emerge evenly coated without the need for an operator to handle the diodes or perform any of the conveying, masking, spraying, or spinning operations.

Automation is possible, inasmuch as the coating material is confined by remote masking and not mechanical means, thus eliminating the use of spray masks, registering devices and mask cleaning operations.

(continued)

NOW, once and for all
SOLVE YOUR FINISHING PROBLEMS
H. W. KRAMER'S Noiseless, chain-driven Tumblers CUTS DOWN YOUR LABOR COST . . . DEBURRS, DEFLASHES, POLISHES hundred parts at the time instead of the conventional methods which finish only one part.
Only KRAMER's Tumblers and Buffers give you SUCCESSFUL PRECISION FINISHING with high Savings!
METAL BARREL TUMBLER
Metal Barrels may be lined with kiln dried maple or wear resistant vinyl. You can have one, two or even three compartments. Variable speed drive optional. Tumbling supplies also available.
CUT DOWN ON YOUR BUFFING COST UP YOUR PROFITS with KRAMER'S BUFFING LATHE
H W Kramer
YOUR KEY TO BETTER FINISHING
120-30 Jamaica Avenue
Richmond Hill 18, N. Y.
Take advantage of H. W. KRAMER'S "FREE SAMPLE PROCESSING SERVICE"
BUFFS, BUFFING WHEELS & COMPOUNDS for every industry.
Special Compounds for SPECIAL APPLICATIONS.
Write Dept. PFa for Detailed Informations.
For more data circle 359 on Postpaid Card

it's in the bag!

Nickel Sulphate
Nickel Chloride
Nickel Carbonate
Nickel Acetate

CERTIFIED PURITY AND QUALITY – Only Nuodex "lays it on the line," with an exact *certified* analysis of every batch, attested to by the Quality Control Chemist. This certification appears on every bag of Nuodex nickel plating chemicals shipped to you.

THE FULL MEASURE OF METAL YOU PAY FOR – The specifications and certification on the label are your assurance that you get *all* the nickel content you pay for. For example, Nuodex stipulates no release of nickel sulphate without a minimum 22% nickel content.

100% VIRGIN NICKEL METAL FINES – All Nuodex nickel plating chemicals are manufactured from virgin metal ores. No recovered, reprocessed or scrap nickel is ever used, to assure you the absolute minimum of impurities.

PROTECTED SOURCE OF SUPPLY – The virgin metal used in Nuodex plating chemicals comes from an independent Canadian source. This is your insurance against possible future shortage.

When you buy Nuodex you *know* what you're getting . . . and you *get* all you pay for. Quality controlled . . . value certified, Nuodex nickel plating chemicals are used with confidence—always.

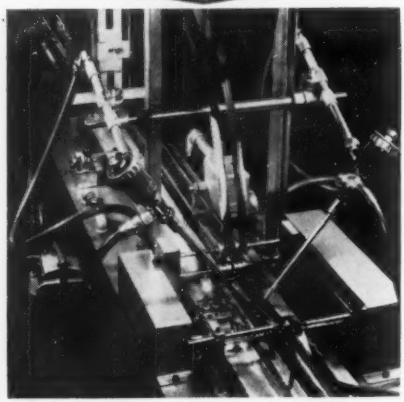
Buy the best . . . it costs no more.

NUODEX special purpose chemicals for industry

NUODEX PRODUCTS COMPANY • ELIZABETH, NEW JERSEY
A Division of Heyden Newport Chemical Corporation

Fungicides • Nickel Salts • Organic Peroxides • Paint Additives • Stearates • Vinyl Additives

For more data circle 360 on Postpaid Card



Closeup of machine for automatically spray coating diodes and other small components.

The machine may be adjusted to accommodate coaxial lead components of varying lengths.

Manufacturer: Conforming Matrix, 356 Factories Bldg., Toledo 2, Ohio.

For more data circle **8** on Reader Service Card

Epoxy Resin for Fluidized Bed Coating Process

Scotchcast XR-5005 is a rigid, heat-curing, one-part epoxy resin that is useful in various techniques of suspension coating: aerated-bed, spray coating, and so on. The resin has good electrical properties, high heat-distortion point, low moisture absorption, built-in flow control, excellent adhesion to metal, indefinite shelf life at room temperature.

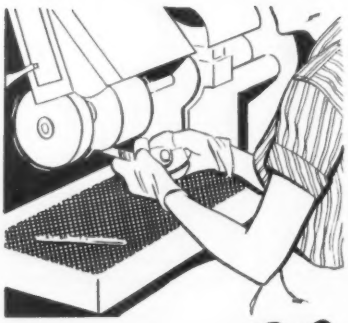
After curing, the resin will withstand continuous operating temperatures up to 300 deg. F., resists most chemicals and solvents, retains most of the advantages of epoxy resins.

Details on application processes to form smooth protective coatings can be obtained by writing the manufacturer of this resin.

Manufacturer: Electrical Products Div., Minnesota Mining and Manufacturing Co., St. Paul 6, Minn.

For more data circle **9** on Reader Service Card

PROTECT FINE PLATED SURFACES

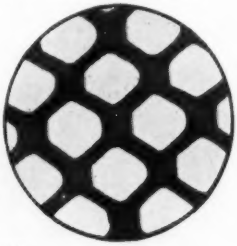


with **RP** *Neotex*®

PROTECTIVE MESH

Neotex . . . the open pattern Neoprene rubber matting, protects highly polished finishes when used to line any surface where goods are worked on or in transit. In roll form, Neotex can be easily cut to any size or shape . . . it's rugged and long lasting, resistant to abrasives, caustics, heat, acids, oils, oxidation. Open pattern permits buffing compounds to settle. Available in a fine or coarse pattern. Write for complete information.

RP *Neotex*®



RESEARCH PRODUCTS CORPORATION

Dept. 76, Madison 1, Wis.

For more data circle 361 on Postpaid Card

Planned Quality

And How Summit Finishing contributes to its achievement with

AHCOLOID CLEANERS

Precision finishing of close tolerance parts and metal strip requires the high degree of engineering experience and ability for which The Summit Finishing Company of Thomaston, Conn. is known throughout the plating industry, and which dictates their selection of Ahcoloid Cleaners #200 and #202A. Naturally, only top quality materials could adequately complement engineers and facilities ranked among the best in the business to produce a superlative output. Top quality is always *planned* quality and the experienced engineering planning necessary to select the compound best integrated with your cleaning procedures is yours from Hubbard-Hall on request.

Hubbard Hall

THE CHEMICAL CO.

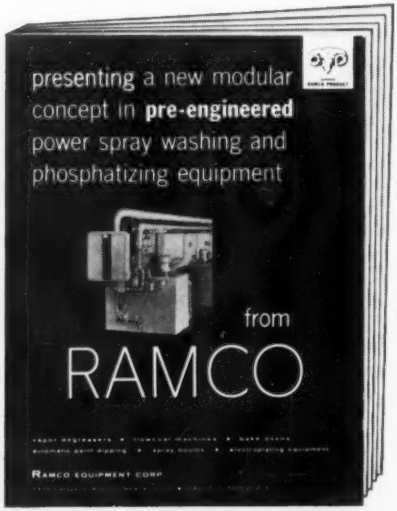
WATERBURY 20, CONN.

Apothecaries Hall Division

For more data circle 362 on Postpaid Card

another RAMCO PRODUCT

NOW from RAMCO


presenting a new modular concept in pre-engineered power spray washing and phosphatizing equipment
from
RAMCO
RAMCO EQUIPMENT CORP.

Send for Ramco's new bulletin NOW!

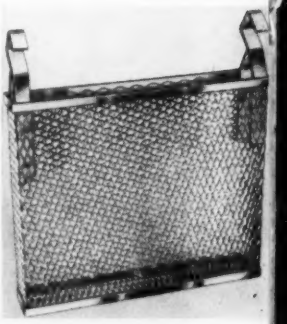
See how Ramco's standardization gives you the same unlimited flexibility as custom designed and engineered multi-stage finishing equipment at a lower capital investment . . . how Ramco's pre-engineered modules are designed to fit your present and future requirements for complete stage-by-stage, conveyorized, finishing machinery. Detailed specification and model selection charts, plus a clearly illustrated formula simplify selecting the proper units to fit your specific requirements.

Send today for your copy.

RAMCO EQUIPMENT CORP.
division of RANDALL MANUFACTURING COMPANY
811 Edgewater Road • New York 59
Phone: DAyton 3-3900
For more data circle 363 on Postpaid Card

New Products . . .

Anode Basket



Scrap Saver Anode Basket

A titanium anode basket that is said to last almost indefinitely when used in nickel plating or acid copper plating solutions has been introduced by Plating Products, Inc.

Advantages of the basket, according to the manufacturer, are that it is not affected by the corrosive plating solutions; makes perfect electrical contact with anode scrap; and it will not contaminate solutions with metal ions.

Manufacturer: Plating Products, Inc., 1513 N. Washington St., Kokomo, Indiana.

For more data circle 10 on Reader Service Card

★ ★ ★

Gloves for Handling Solvents

SolvaSeal coated fabric gloves developed by The Surety Rubber Company are specially designed and treated to

(continued on page 102)

Surety Glove: for handling solvents

For more data on advertisement on opposite page, circle 364 on Postpaid Card ——→

ERNIE TO ELLEN TO JOHANNESBURG

Not customary but entirely "in order" is this shipment rushed by Udylite special messenger Ernie Jennings direct to planeside in Detroit, where Pan-Am stewardess Ellen Manners starts it on its way to South Africa. Just 39 hours later delivery is made in Johannesburg, 9036 miles away.

If your problem is as urgent as this, or if you just need quality supplies promptly delivered, you *know* you can count on Udylite supply services to meet your every demand. Discover how it works yourself. Place your next order with Udylite.

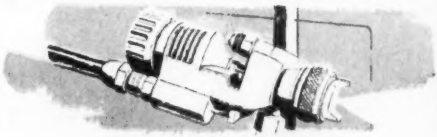
world's largest plating supplier

the udylite corporation

detroit 11, michigan

on the west coast: the l. h. butcher company • los angeles, california

The one sure way of getting the

your products 

that offers the entire package:

for equipment (2) an unbiased

the method best suited to your

research, engineering,

Three words say it:

DeVilbiss total

Spray guns Automatic spray coaters Dip & flow coaters Hot-spray systems Airless spray equipment Portable spray outfits Air compressors Hose & connections Paint tanks & pumps Circulating systems Spray booths Paint baking ovens Make-up air systems Power spray washers Rustproofing

most satisfactory finishes for

is to consult the only company

(1) one-source responsibility

recommendation on

requirements (3) all services--

training--to insure job success.

service *Put it to work for you now!*

machines Pickling equipment Dust collectors Oven heaters Engineered finishing systems Customer research laboratories World-wide parts & repair service Complete operator training • THE DeVILBISS COMPANY, TOLEDO 1, OHIO. ALSO BARRIE, ONTARIO; LONDON, ENGLAND; SÃO PAULO, BRAZIL. OFFICES IN PRINCIPAL CITIES.

FOR TOTAL SERVICE, CALL

DEVILBISS

For more data circle 365 on Postpaid Card

protect hands from ketones, acetones, paint-stripping compounds and other hard-to-handle solvents. They are light weight with curved fingers, have wing-thumb construction, blunt finger ends.

Surety SolvaSeal Gloves are available in women's 11-inch and men's 12- and 14-inch gauntlet style.

Manufacturer: The Surety Rubber Company, Carrollton, Ohio.

For more data circle 11 on Reader Service Card

Coming Soon!
1960 PRODUCTS FINISHING DIRECTORY
Watch for It!

High-Metallic Enamel

An alkyd baking enamel with high metallic content enables users to achieve a broad range of colors with excellent brightness, depth and color, according to Rinshed-Mason Co., developer of the product.

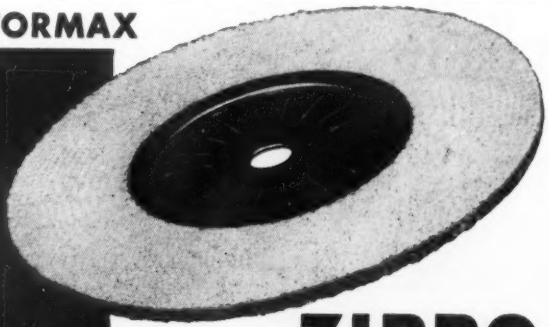
Trade named Star-Mite, the recently introduced product is said to have mirror-like brilliance. Florida exposure tests have proven that gloss retention is exceptionally high. Resistance to mildew in humid climates is also good, the manufacturer reports.

The product is for spray application only, and varying spray techniques present no problem in color deviations.

Although Star-Mite is essentially an exterior-automotive - type enamel, the manufacturer suggests it for use

(continued)

FORMAX



ZIPPO
SISAL BUFFS

A Dual-Purpose Polishing and Buffing Wheel!

Call for Zippo Sisal Buffs when you have need for a fast cutting, heavy duty wheel to remove surface imperfections from ferrous metals. You will find they serve excellently to blend and smooth stretcher strains, orange peel, light die marks and polishing wheel grit lines. And—at the same time leave a bright surface finish.

Write for Descriptive Literature

FORMAX MFG. CORP.
DETROIT 7, MICHIGAN
"THE FOUR McALEERS"

For more data circle 366 on Postpaid Card

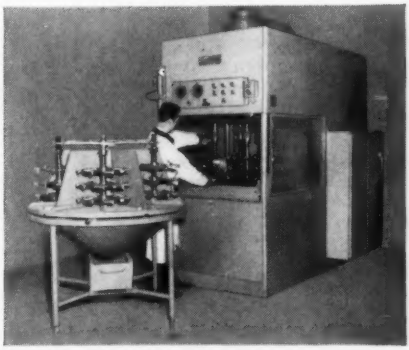
COMPARE Grav-i-Flo's Finishing Prior To Decorative Plating!

Grav-i-Flo Has Exclusive Materials To Produce Finishes Heretofore Impossible In The Tumbling Field—And On Nearly Every Shape And Size Part By These Two Processes:

TUMBLING

Grav-i-Flo exclusive barrel finishing materials make it possible to obtain finishes in a tumbling barrel that no other process can produce. Grav-i-Flo chips are the most outstanding of all barrel finishing medias on the market for decorative finishing. Many customers ultilize Grav-i-Flo's plant facilities for job tumbling of parts on which they have been unable to obtain satisfactory finishes, and later install their own facilities.

SPIN-FINISH



Large parts, intricate shape parts not suited to tumbling and previously finished only by buffing, are now finished in production quantities to high lustre surfaces with Grav-i-Flo's Spin-Finish machines. This short automatically timed operation offers tremendous savings in schedules, labor and floor space. No set-up time required for changing jobs. This is a completely dry process, dust and fume free, eliminating exhaust systems.

Check with Grav-i-Flo Engineering

for better finishes prior to decorative plating. Grav-i-Flo personnel were the pioneers—and are still the leaders in tumble finishing.

GRAV-I-FLO CORPORATION

Dept. PF-2 Sturgis, Michigan

For more data circle 367 on Postpaid Card

on other metal products such as outboard motors, metal furniture and office equipment, household and commercial appliances, bicycles, and so on.

Manufacturer: Rinshed-Mason Co., Detroit 10, Mich.

For more data circle **12** on Reader Service Card

★ ★ ★

Filter

The Dynion Water Purifying Filter helps to eliminate roughness and cloudiness in decorative plating.

Capable of removing suspended micro-size matter from ordinary tap water, the Dynion Water Purifying Filter delivers the pure water so important in obtaining clean, unblemished work.

Hollow filter and high-porosity candles impregnated with ional silver form the basic part of the Dynion Water Purifying Filter. These ceramic tubes made of diatomaceous earth create instant, non-toxic purifying action. The micro-fine porosity of the candle walls traps and filters out all micro-size life, suspended solids and metal without changing the chemical content of the water.

Scharf's Dynion Water-Purifying Filter

Manufacturer: Scharf Manufacturing Co., 6120 Binney, Omaha, Nebr.

For more data circle **13** on Reader Service Card

for the "Solution to your Plating Problems" .... come to JELCO

One of America's leading manufacturers
- BRASS Additive
- COP-BRITE
- BARREL COPPER Brightener
- BARREL NICKEL Brightener

For technical information, complete details and prices ... write to

Now **SPEED** plate in brass with your present solution!

BRASS ADDITIVE . . . for still & barrel plating

- Increases efficiency and throwing power
- Produces brighter and faster plating
- Allows use of a higher current density
- Retards anode polarization
- Eliminates cyanide and ammonia fumes

A Proven Process!

Used successfully by job platers and manufacturers

Non-Critical
Boosts Production
Cuts Rejects

JELCO Finishing Equipment Corp.
153 East 26th Street, New York 10 · Phone LExington 2-3055

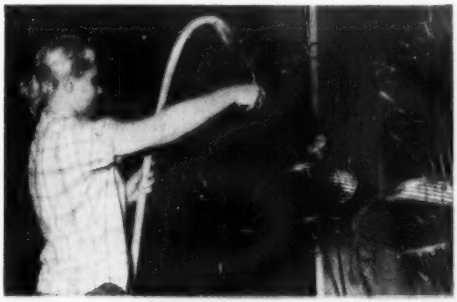
For more data circle 368 on Postpaid Card

RANSBURG

What Would Paint Savings Like This* Mean in YOUR Finishing Department?

Quality is all important in the production of fine Metalcraft furniture by George Koch Sons, Inc., Evansville, Indiana.

That's why they use the Ransburg Electrostatic Hand Gun to apply a uniform clear coating on their brass-plated furniture. The protective coating is baked on. Although the bulk of their present production is in the popular brass line, they still paint the metal furniture in a variety of colors with the Hand Gun.



Painting is CLEANER . . . QUICKER . . . CHEAPER *with the Ransburg Electrostatic Hand Gun.*

*10 GALLONS OF PAINT NOW DOES THE JOB WHICH FORMERLY TOOK 30 GALLONS

On one item—a TV table—they formerly used 30 gallons of enamel to coat 1000 units by combination dip and air spray method. Now—with the Ransburg Electrostatic Hand Gun, they paint 1000 tables with only 10 gallons. And, they get a better, more uniform coating, too.

No Reason Why You Can't Do It, Too!

See how the Electrostatic Hand Gun can save time . . . paint . . . and cut costs in YOUR finishing department. Or, if your production justifies, it'll pay you to investigate Ransburg's automatic electrostatic spray painting equipment. Write for our No. 2 Process brochures which show numerous examples of modern production painting in large and small plants.

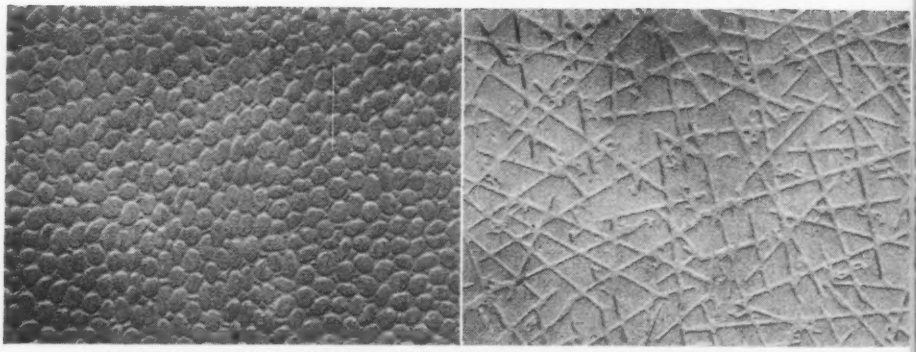
Call or write

RANSBURG Electro-Coating Corp.

Box-23122, Indianapolis 23, Indiana

For more data circle 369 on Postpaid Card

TEXTURE plus



Unichrome Finish 6440 is a handsome colorful vinyl finish that faithfully mirrors the underlying surface whether patterned or smooth. Chemically resistant, it protects against staining and corrosion.

New M&T sprayed vinyl finishes make products look better – wear ten times longer than baked enamel

Now you can add extra appeal to your products at little extra cost, thanks to two vinyl finishes recently developed by Metal & Thermit. Both are available in any color you specify.

Unichrome Finish 6400 is for spraying on smooth metal products. It produces a fine finish with the luxurious look of leather.

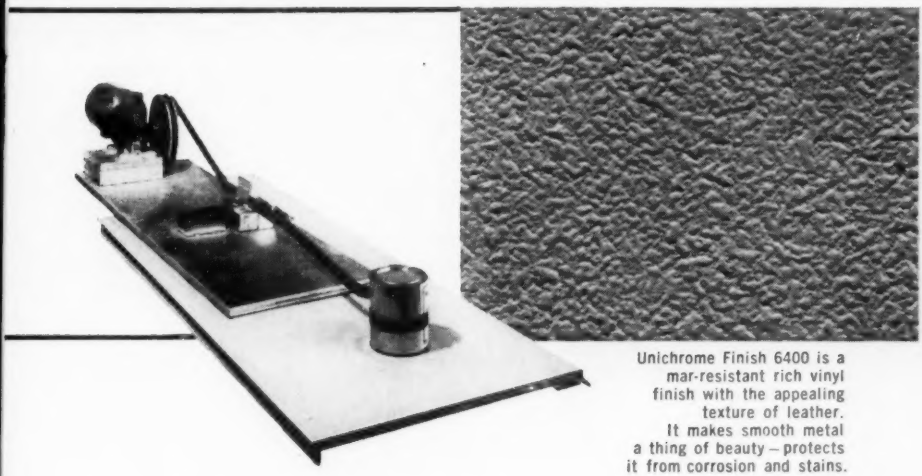
Unichrome Finish 6440 faithfully mirrors the mill-patterned steel or aluminum it coats. It can be sprayed thick or thin, adds color to the metal—and a feeling of warmth, too.

Both of these sprayed vinyl coatings offer you many other advantages. Durability is chief among these. Tests have proved that both coatings are up to ten times more wear resistant than the usual baked textured enamel. Their inherent chemical resistance means protection against stains and corrosion. And they aid in deadening sound, too.

On the production line, you can eliminate expensive scrap loss incurred with laminates by *spraying* the finish onto the product. In addition, these sprayed vinyl finishes eliminate seam problems at all joints, and raw metal at edges.

The M&T man has complete information on these Unichrome Coatings. Or send for details.

DURABILITY



Unichrome Finish 6400 is a mar-resistant rich vinyl finish with the appealing texture of leather. It makes smooth metal a thing of beauty – protects it from corrosion and stains.

Durability test: 535,000 rubs

Recently a midwestern company was asked to design the interior of a new supermarket. They had become increasingly disappointed with the performance of the baked enamel steel shelving they had been using in many other stores.

So they gave a baked enamel shelf the "can test"–a #10 can of tomatoes sliding continuously over the shelf. After 20,000 to 30,000 such rubs from the seven-pound can, the enamel began to show marked wear.

The can test was also given to a steel shelf coated with Unichrome Finish 6400. Results were amazing. After 535,000 rubs the bottom had worn off the can of tomatoes. But the textured finish was just like new.

M&T **coatings and finishes**

METAL & THERMIT CORPORATION

General Offices: Rahway, New Jersey

In Canada: Metal & Thermit–United Chromium of Canada, Limited, Rexdale, Ont.

For more data circle 370 on Postpaid Card

IMPROVED
BRIGHT NICKEL PROCESS

SEYMOUR **Hi-Thro**
(PATENT APPLIED FOR)

MORE THROWING POWER!
CLEANER, WHITER, BRIGHTER!

Seymour Hi-Thro is a new but thoroughly field-tested process that gives your product a **cleaner, whiter,** more **durable** bright nickel base than ever before possible! It completely eliminates the problem of dark deposits and provides an economical, mirror-bright base for a superb, sparkling, sales-building finish that will last and last!

What's more, Hi-Thro has more **throwing power** . . . gets deep into those hard-to-plate areas faster, more thoroughly — reaching into every nook, cranny and crevice to give your product the most economical, durable, uniform base plate possible today!

If superb, long-lasting finishes figure in your sales and profits picture, insist on new Seymour Hi-Thro Bright Nickel Process! There's no substitute!

• Fast brightness-building qualities • Broader, more uniform bright range • Excellent levelling action • Exceptional current density and temperature range • Wide pH range — 2.8 to 4.5 • Excellent ductility • Better corrosion protection • Good tolerance to impurities • Highly receptive to chrome plating • No toxic or unpleasant fumes

Send a test sample of your product — or write for a sample of Hi-Thro.

Electro Chemical Supplies Division
The SEYMOUR MANUFACTURING CO.
SEYMOUR, CONNECTICUT

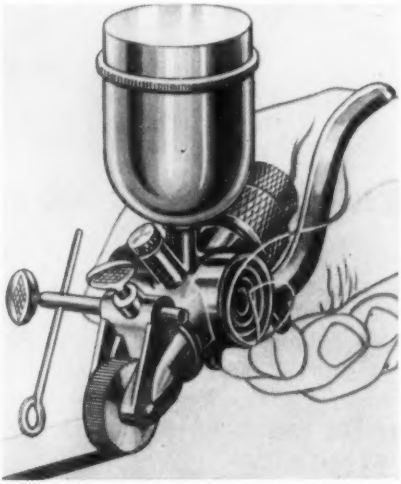
For more data circle 470 on Postpaid Card

Paint Striper

Making painted stripes in widths from 1/32 inch to 2 inches is a simple matter with the Wendell Type W paint striper.

According to the manufacturer it is easy to produce clean, straight lines as well as curved and accurate parallel striping. The tool is used in production finishing as well as in refinishing of equipment, furniture, bicycles, trucks and boats.

The striper is held like a fountain pen; a small interchangeable wheel "rolls out" a stripe of the desired width; has adjustable line gage and paint-flow regulator. Beveled and V-shaped wheels for striping grooves are available.



Striping Tool: paints clean, straight lines

Manufacturer: Wendell Mfg. Co., 4234 North Lincoln Avenue, Chicago 18, Illinois.

For more data circle 14 on Reader Service Card

INDUSTRIAL
OVENS OF ALL TYPES

SPECIAL PROCESS OVENS

•

CONVEYORIZED FINISHING SYSTEMS

•

BATCH FINISHING SYSTEMS

•

ALUMINUM AGEING OVENS

•

CORE BAKING OVENS

•

FLUX DRYING OVENS
Continuous Strip Wire Baking

•

LABORATORY OVENS
Cabinet Portable

Write for specific information
to meet your specific requirements

INDUSTRIAL OVENS, INC.
13811 TRISKETT ROAD

CLEVELAND 11, OHIO

For more data circle 371 on Postpaid Card

Disposable Gloves

Wilson Rubber Company's clear polyethylene gloves protect the wearer's hands from a wide range of chemicals, powders, and resins, can be thrown away after use.

Wil-Gard Clear Plastic Disposable Gloves

Called Wil-Gard Poly-D gloves, the recently introduced hand protectors are lightweight, moisture proof, have strong, heat-welded seams with smooth edges that resist snagging and tearing without sacrificing manual dexterity and touch sensitivity. Besides protecting the wearer, the gloves also protect metal parts from perspiration.

Available in medium and heavy weights, the polyethylene gloves are packed 144 to the box.

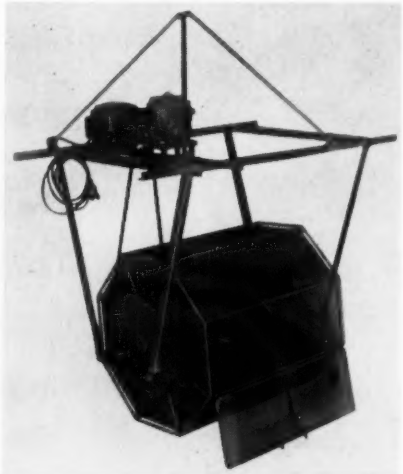
Manufacturer: Wilson Rubber Co., Industrial Div., 1200 Garfield Ave., S.W., Canton 6, Ohio.

For more data circle **15** on Reader Service Card

★ ★ ★

Tumbling Barrels

Stationary and portable tumbling barrels for cleaning and chemical treating of metals are now being manufactured by Wiretex Manufacturing Co., Inc.

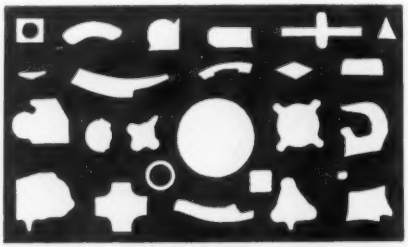


Portable Wiretex tumbling barrel has handle that permits carrying of barrel by hoists

Barrels are used in processes that require immersion, removal and reimmersion of parts.

Barrels ride on a shaft with ball-bearing pillow blocks.

(continued on page 114)



Pre-Cut Masks Speed Finishing

Eliminates hand cutting! Brady self-sticking pre-cut Masks are die-cut to close tolerances — go on fast and accurately — protect from finishing to inspection. Hundreds of shapes and sizes in stock for immediate delivery. Distributors in over 300 principal cities.

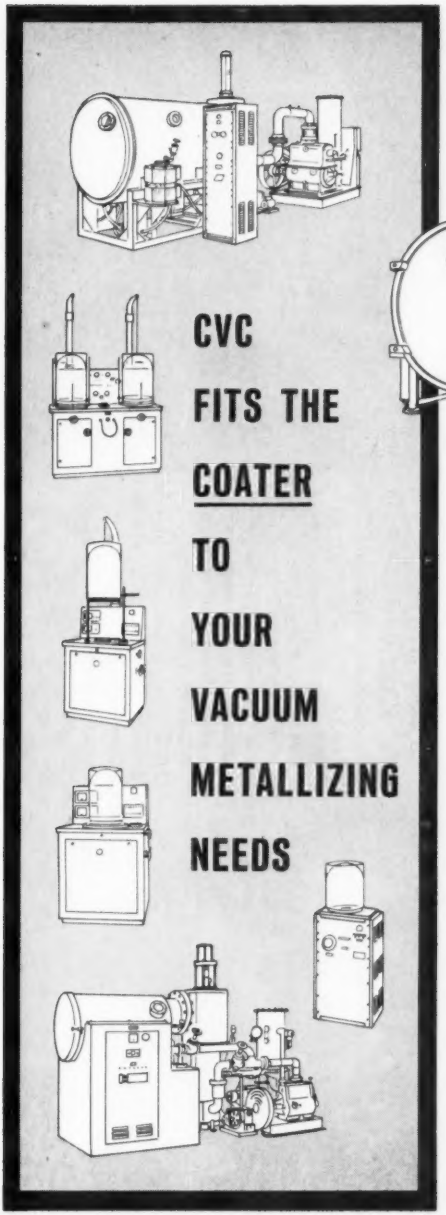
NARROW-SLIT MASKING TAPES — For fine line masking. Precision slit to .005" tolerances. Widths from 1/64" to 1/4" — 30 yard rolls.

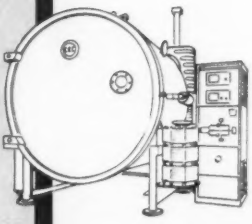
Write for free samples and bulletin No. 160. 40A

W. H. Brady Co.

746 W. Glendale Ave., Milwaukee 9, Wis.

For more data circle 372 on Postpaid Card





For example, you can apply decorative or functional metallic finishes to thousands of units per hour with the huge 72″ CVC Coater pictured just above. Or coat pieces as large as 22″ x 50″ on a profitable volume basis.

You'll find a right-size CVC Coater (from 12″ to 72″ chamber diameter) to meet every need—from production to pilot plant to laboratory.

Volume is greater and costs are less than by any other finishing method. And they're easy to use—no special training required.

WRITE us for more details. Just ask for Metallizing Bulletins.

CVC

Consolidated Vacuum Corporation

ROCHESTER 3, NEW YORK

For more data circle 373 on Postpaid Card

Laboratory and Production Ovens by

DESPATCH OVEN CO.

- *Recirculating to save fuel*
- *Uniform heat for proper bakes*
- *Fast heat recovery to speed production*

Standard 500° F.
Heavy Duty 650° F.
Super Duty 850° F.
Other Ovens to 1350° F.
Gas—Electric—Oil—Steam

"V" SERIES OVENS

Precision engineered to give temperature uniformity throughout work chamber. The Despatch design of ducts and ports assures balanced air flow. The sturdy blower and heater arrangement guarantee heat control accuracy within ±1° C.

New design features give added safety from explosion when used for liquids, gases, volatiles.

Sturdily built, attractively finished, comes in sizes 13" x 13" x 13" to 42" x 42" x 42". Available for electric, gas, (steam or hot water at available pressures for special application).

"RS" SERIES OVENS

Flexible loading system permits varied operation.

Rugged construction, economical to operate, roomy and portable make Despatch RS Ovens a fine investment for small production as well as laboratory work. Rec-

DESPATCH

Batch Type Ovens with Laboratory Oven Control

OVEN CO.

Despatch Batch Type Finish Baking Ovens provide maximum flexibility for handling a variety of materials and for baking finishes on products at high speed and with low cost.

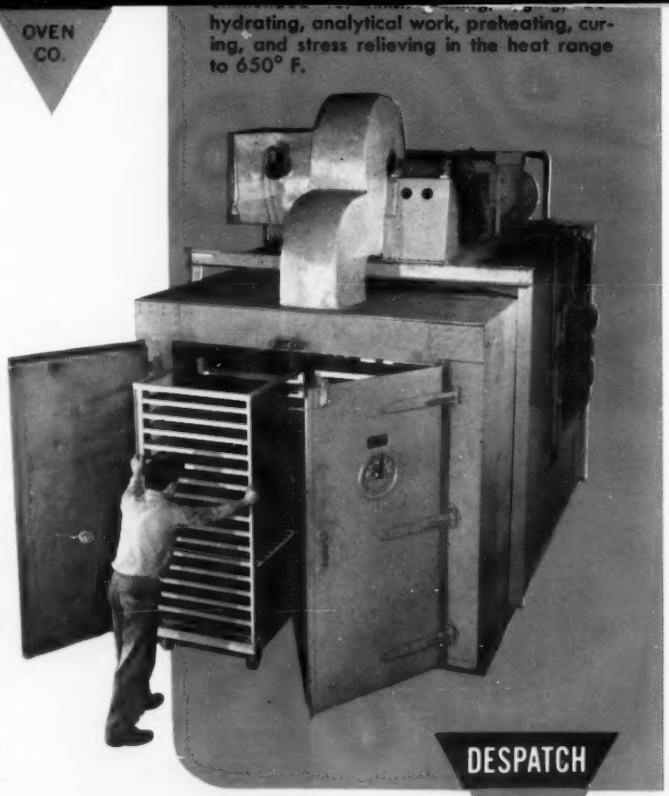
These ovens find many applications in large plants and small plants. Excellent for baking phenolic finishes on coils, stators, etc., or for finish work using japans, lacquers, and enamels.

Despatch S type ovens are panel constructed for size and work flexibility. Designed to give fast baking, amazing heat uniformity in the work chamber and to use any available fuel. All loading arrangements can be adapted to the Despatch "S" type oven.

RUGGED CONSTRUCTION — Despatch "S" type ovens are built of extra heavy steel panels, strongly reinforced throughout. From top to bottom they are built for long service with minimum maintenance costs.

FLEXIBLE — Special Despatch patented panels form the basic construction unit for Despatch "S" type ovens. These panels are easy to ship to location for erection and can be dismantled and moved at low cost. Permits easy expansion of oven to permit larger oven capacity.

CONVENIENT accessible controls, adaptable heater design, easy to load, smooth working sag-free swing doors or lift doors.



Write for literature to help determine the correct oven for your plant.

DESPATCH OVEN COMPANY • 619 S.E. 8th Street, Minneapolis, Minnesota

For more data circle 374 on Postpaid Card

The frame includes a "superstructure" made of ½-inch-diameter rods which permit portable and stationary barrels to be carried and positioned by hoists. This is especially important in plants where loading, treating and rinsing or secondary treating operations are carried out in different sections.

Wiretex tumbling barrels are available for any type of operation.

Manufacturer: Wiretex Manufacturing Co., Inc., 40 Mason St., Bridgeport, Conn.

For more data circle **16** on Reader Service Card

★ ★ ★

Cover for Degreasers

The "Baron Econ-O-Lid," a roll-type cover that attaches easily to vapor spray degreasers of every size, reduces the amount of degreasing solvent lost by evaporation.

The lid is permanently mounted on the top of the degreasing machine.

With a flick of the finger the "Econ - O - Lid" rolls across the top of the machine to a completely open or closed position. When the lid is closed, solvent vapors are locked inside the machine. When rolled back to the open position, the degreaser lid to the work area, the work area, since it takes no additional machine space.

The manufacturer states that extensive tests in the field revealed the fact that operators who normally left the degreaser uncovered rather than struggle with

(continued)

Do You Use Bronze Powder Finishes?

Bronzeless GOLDS

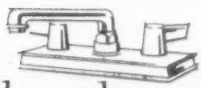
---COST LESS (more mileage)
----NEVER Tarnish
-----NON-GELLING
------Supplied READY MIXED

Write Now for Bulletin J-260 and Color Chips

BEE CHEMICAL COMPANY
LOGO DIVISION

12933 South Stony Island Avenue, Chicago 33, Illinois
Phone: Mitchell 6-0400
GARDENA, CALIFORNIA • HARTFORD, CONNECTICUT

For more data circle 375 on Postpaid Card

This is LECTRITE 'Z' ...the new electrocleaner that removes all dulling films from all zinc die-cast alloys. Use it for side-view mirrors or refrigerator handles . . . plumbing fixtures  or furniture hardware. You'll get streak-free, shadow-free plating every time!

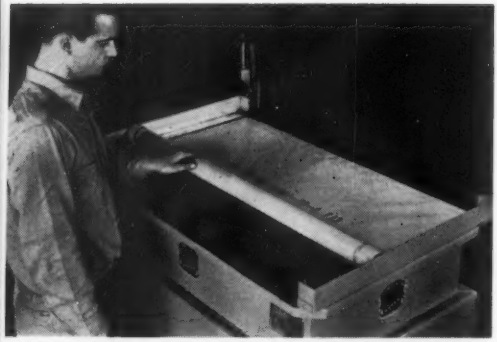
And...LECTRITE® 'Z' is adaptable to hand lines and automatics—will even handle die castings and brass parts in the same line. It is built with heavy-duty, anhydrous ingredients for long and trouble-free service. It provides a light foam blanket that is right for all electrocleaning operations—eliminates explosion possibilities, yet retains fumes. It is non-dusty and easy to handle.

If you can use advantages like these, put LECTRITE 'Z' to work. Get in touch with your Wyandotte representative, today. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, California, and Atlanta, Georgia. Offices in principal cities.*

Wyandotte CHEMICALS

J. B. FORD DIVISION • *The best in chemical products for metal finishing*

For more data circle 376 on Postpaid Card



Baron Econ-O-Lid: saves degreasing solvent

heavy steel covers now consistently use the "Baron Econ-O-Lid" because it's easy to control.

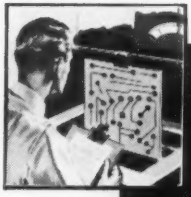
Manufacturer: Baron Industries, 241 W. Avenue 26, Los Angeles 31, California.

For more data circle 17 on Reader Service Card

"Piggy-Back" Conveyor

Equipment recently introduced by Econ-O-Veyor Corporation makes it possible to modify the company's overhead conveyors to improve versatility of the system. The equipment is designed for installation where it is necessary to transfer loaded conveyor trolleys from one operation to another; where loaded trolleys must be shifted from one conveyor system to a second system; where storage tracks are needed; and for other similar uses.

The system consists of two trolleys which travel "piggy-back." It is automatically controlled. The two trolleys can be separated at any point, the trolley under power continuing along the main conveyor track, and the other trolley moving along another track which starts at the transfer point. The trolley which has been transferred is directed to a side-track



Rhodium
ELECTROPLATING SOLUTIONS

Consult our staff about plating problems.

SINCE 1901

Rhodium, hard and very corrosion-resistant, is an excellent electrical contact material.

Its use is suggested on printed circuits, wave guides, and electrical contacts where light contact pressures, low voltage, and intermittent service are involved.

This Rhodium plating solution is easy to use. It operates over a wide range of temperature and current densities. We will be glad to plate samples without charge.

SIGMUND COHN MFG. CO., INC.
121 SOUTH COLUMBUS AVENUE · MOUNT VERNON, NEW YORK

For more data circle 377 on Postpaid Card

Only IRIDITE® PROCESS ENGINEERED Chromate Conversion Coatings

Give you 5 additional benefits for Corrosion Protection—Paint Base—Decorative Finishing

1. A COMPLETE PROCESS ENGINEERED LINE

Developed for specific applications, there is an Iridite to provide the finish you desire, fit the equipment you have available and give the performance you require. Most Iridite coatings meet rigid military and civilian specifications.

2. EXPERIENCED TECHNICAL SERVICE

Our large field engineering staff is thoroughly familiar with chromate conversion coatings and related finishing operations. They'll help you check every step in your finishing operation to make sure you're getting the best possible finish on your products.

3. PRODUCT AVAILABILITY

Warehouses located in strategic industrial areas enable us to provide you with fast, economical delivery on any Iridite.

4. ECONOMY

The superior performance of Iridite provides low final cost by extending operating life and lowering maintenance costs. In addition, Iridite gives you a finish that adds considerably to the value of your product. There's an Iridite to meet every cost and performance requirement.

5. RESEARCH AND DEVELOPMENT FACILITIES

If you have an unusual application, we will gladly work with you. Our entire staff of experienced engineers and chemists, and our completely equipped facilities are at your service.

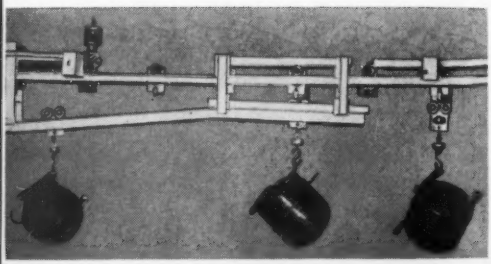
If you are using chromate conversion coatings to finish zinc, cadmium, aluminum, magnesium, silver, copper, brass or bronze — consider the above benefits of Iridite. For complete information, contact your Allied Field Engineer. He's listed under "Plating Supplies" in the yellow pages. Or, write for FREE TECHNICAL DATA FILE.

Allied Research Products, Inc.

4004-06 EAST MONUMENT STREET • BALTIMORE 5, MARYLAND
BRANCH PLANT: 400 MIDLAND AVENUE • DETROIT 3, MICHIGAN
West Coast Licensee for Process Chemicals: L. H. Butcher Co.
Chemical and Electrochemical Processes, Anodes, Rectifiers Equipment, and Supplies for Metal Finishing

IRIDITE® Chromate Coatings	IRILAC™ Clear Coatings	ISOBRITE® Plating Brighteners	ARP® Chemicals & Supplies	WAGNER Line of Equipment

For more data circle 400 on Postpaid Card



Econ-O-Veyor "Piggy-Back" Conveyor Trolley

area, a work area, or to a point where it is picked up by another conveyor, or perhaps by the same conveyor. As many side track areas as desired can be served in this fashion, and only one powered conveyor is required.

Manufacturer: Econ-O-Veyor Corporation, Dept. O, 224 Glen Cove Ave., Glen Cove, N. Y.

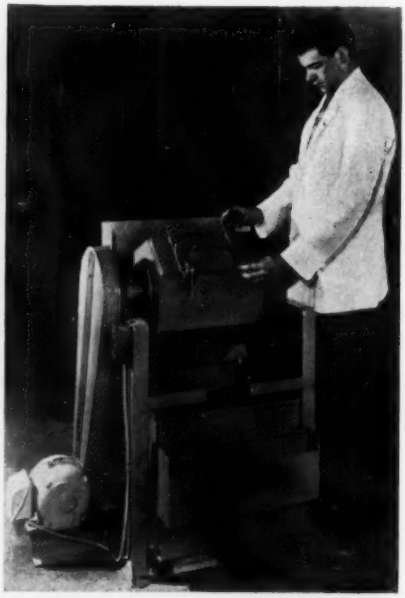
For more data circle 18 on Reader Service Card

★ ★ ★

Small Barrel Finisher

A barrel finishing unit, Model XL-1415, designed especially for ball burnishing jewelry parts, deburring of small metal stampings and castings, and deflashing plastic parts, has been introduced by Tumb-L-Matic, Inc.

The hexagonal barrel is 14 inches in diameter, 15 inches long and lined with neoprene. Barrel speed is adjustable from 15 to 45 r.p.m. The XL-1415 incorporates a caster-mounted work and compound separation system. The screen in the top tank retains work when the barrel is emptied and allows media to fall through to the screen directly underneath. The screen retains media and allows water and compound to pass.



Model XL-1415 Barrel Finishing Unit

Manufacturer: Tumb-L-Matic, Inc., St. Mary's St., Stamford, Conn.

For more data circle 19 on Reader Service Card

YOUNG BROTHERS *Baking and Drying* **OVENS**

designed and built for every product and process requirement

Batch and Conveyor types up to 1000° F.

Write for Bulletin 157

YOUNG BROTHERS CO. 1830 Columbus Road Cleveland 13, Ohio

Over 60 years of service

For more data circle 378 on Postpaid Card

Porcelain Enamel Finishing System for Magnesium Alloys

A porcelain enamel finishing system for magnesium has been developed by The Dow Metal Products Company, Division of The Dow Chemical Company.

The finish offers the usual advantages associated with porcelain enameling, such as attractive color and texture and resistance to abrasion, scratching and chemical attack.

Key to the new finishing system is a Dow-developed surface pretreatment which solves the adhesion problem that thwarted previous efforts to apply porcelain enamel to magnesium, Dow reports. The pretreatment makes possible the use on magnesium of standard lead-oxide or lithium-phosphate porcelain enamels already in use on other metals.

According to Dow, porcelain-enameled parts of magnesium AZ31B alloy have withstood 500 hours of 20 per cent salt spray without corrosion. Panels with bared edges showed little corrosion. No "spall back" or undercutting because of corrosion at the edges was observed.

Panels exposed to exterior weathering in an industrial atmosphere showed no corrosion and no spall back from the bared edges after five months.

When panels were heated to 800 deg. F. and immediately quenched in cold water, no spalling because of cold shock resulted.

(continued)

GRIPALLOY®

primer and enamel

. . . A Corrosion Resisting, Metal Etching Coating, designed as a primer . . . . May also be used as a top coat . . . . Available in all colors . . . . Tight adhesion to 25 different metals . . . . A natural for Magnesium Alloys, Aluminum and Non-ferrous metals . . . . Air dries in 5 minutes for most topcoats.

TENAX FINISHING PRODUCTS CO.
Newark 5, New Jersey

Lacquers — Enamels — Synthetics — Vinyls
For more data circle 379 on Postpaid Card

PRODUCTS FINISHING

consistently carries more advertising than any other publication in its field!

Dow lists high-temperature engine parts, signs, building panels, cooking ware and home appliances as possible applications for porcelain-enameled magnesium.

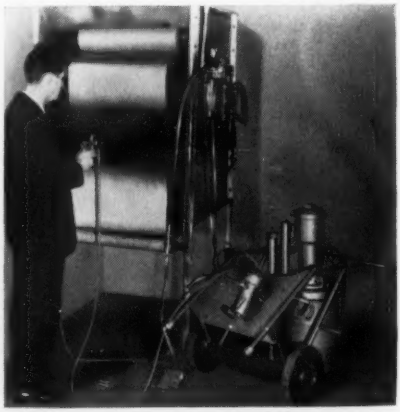
The finishing system cannot be used with magnesium alloys of high aluminum content and of high total alloy content because these alloys contain low-melting-point eutectic. It has been used successfully, however, with the magnesium alloys of lower aluminum content, the magnesium-thorium alloys and the magnesium-rare earth metal alloys.

Developer: The Dow Metal Products Co., Div. of The Dow Chemical Co., Midland, Mich.

For more data circle **20** on Reader Service Card

Airless-Spray Gun

The H-Gun is said to eliminate some of the disadvantages of airless spraying and improve quality of the paint film applied. According to the



The H-Gun: for airless spray painting

Electro **NON-FLAMMABLE**

NO CURRENT
NO HEAT **Cold Stripper**

Save TIME and MONEY and EFFORT

Enamels, *even high bake*, vinyls, epons, hammers, wrinkles, alkyd paints, primers —in fact—every known hard to remove finish yields to ELECTRO COLD STRIPPER in quick teime—ofteen seconds. Eliminate the problem of paint build-up on conveyor baskets, carrying racks, hooks, etc., with an ELECTRO COLD STRIPPER in-line or batch set-up.

COMPLETE DATA AND TESTING SAMPLES AVAILABLE—GRATIS

ALLIED FINISHING SPECIALTIES CO.

2643 W. GRAND AVENUE • CHICAGO 12, ILLINOIS • PHONE: AR 6-2222

For more data circle 380 on Postpaid Card

developer, Spee-Flo Company, the recently introduced gun has the following advantages: requires 40 to 50 per cent less fluid pressure for proper atomization; "flooding" and "pigtailing" totally eliminated; improved spray patterns produced; edges of the spray pattern are properly feathered, permitting overlap without danger of runs or sags; most materials can be sprayed cold; materials that are difficult to apply by airless spray because of quality requirements can be applied with good results by using the gun with heated paint supply.

Manufacturer: Spee-Flo Co., 6614 Harrisburg Blvd., Houston 11, Texas.
For more data circle **21** on Reader Service Card

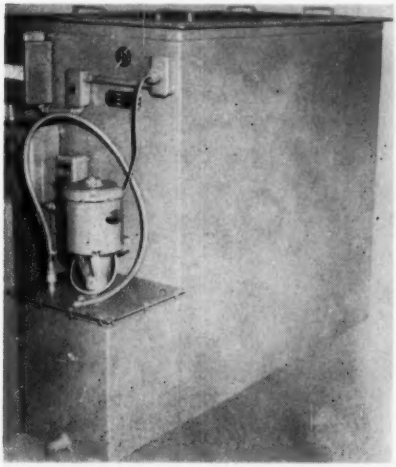
★ ★ ★

Vapor Degreaser

Model 18-4222 vapor degreaser is a trichlorethylene, self-distilling machine which is supplied with a pump that is said to overcome seat-leaking problems.

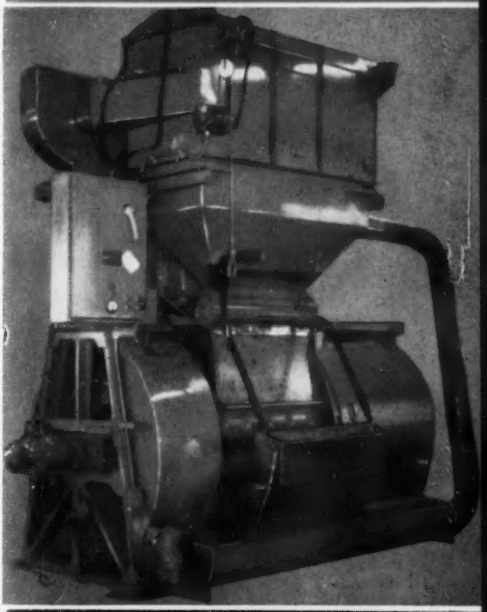
The unit is equipped with a small reset safety thermostat. Capacity is 500 pounds of steel per hour.

Manufacturer: Dry Screen Process, Inc., 1016 Madison Ave., Pittsburgh.
For more data circle **22** on Reader Service Card



Model 18-4222 Vapor Degreasing Machine

. . . the HARPERIZER



Major BREAKTHROUGH in Mechanical FINISHING COSTS

NO BUFFS — NO FIXTURES

- 80% Savings on Labor and Materials by present users—same for short and long runs.
- HI—G—*Free Grain* — ACTION can produce similar savings on over half the jobs now buffed.
- FINISH—equal or superior to Buffing. Intricate detail and complicated shapes preserved.
- RANGE — All Metals — Most Plastics; sizes from watch screws to headlamps —

You can finish *better* for *less* with the HARPERIZER
Ask for a Demonstration
Write or Phone (ANdrew 7-2553)

Also manufacturers of the
Finest automatic machines using wheels and fixtures to buff, deburr and polish

The HARPER BUFFING MACHINE CO.
EAST HAMPTON ● CONNECTICUT
For more data circle 381 on Postpaid Card

NEWS

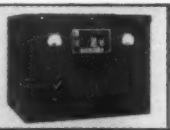
from

DRESSER

ELECTRIC CO.

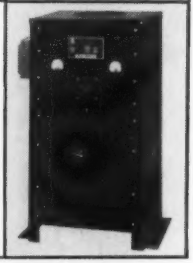
TYPE "LS" SILICON DC POWER SUPPLIES

Standard units now incorporate the very latest developments in Silicon Diode Design. Deliver full rated current at rated voltage day in and day out. Accurate regulation – full over-load protection – low ripple.



SINGLE PHASE BENCH MODELS
120 Volt, 60 Cycle AC Input
25, 50 and 100 Amp
6, 12 and 18 Volt DC Output

3 PHASE FLOOR MOUNTED MODELS
230 or 460 Volt, 60 Cycle AC Input
100, 200 or 300 Amp
6, 12 and 18 Volt DC Output



Also available with remote control.

Popular models normally carried in stock.

For complete information write today for Dresser Catalog LS. For Units 500 Amps and up, ask for Catalog HS.

You can enjoy
DC Power Efficiency NOW!

SPECIFY DRESSER!

DRESSER

ELECTRIC CO.

2705 Wight Street Detroit 7, Mich.

For more data circle 382 on Postpaid Card

Miniature Agitator

Miniature Agitator

What is believed to be the smallest commercially available explosion - proof agitator has been introduced by Spraymation, Inc.

The "Mini-Mix" Model 5518 is explosion proof, not subject to damage by stalling or overloading, and capable of speed variation as required.

Various modifications of this mixer permit it to be used with automatic or hand guns, fitted to paint cups, or extremely small containers, or held in the hand for use in places where a standard mixer cannot be used.

A special model mounted in a four-ounce jar has been developed for use in the electronics field for the agitation of critical ceramic and metallic materials used in making transistors.

Manufacturer: Spraymation, Inc., 25 Amity St., Little Falls, N. J.

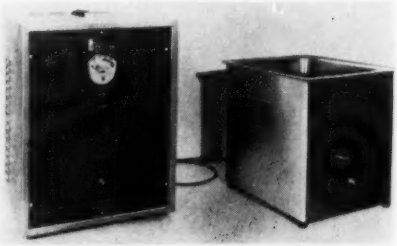
For more data circle **23** on Reader Service Card

★ ★ ★

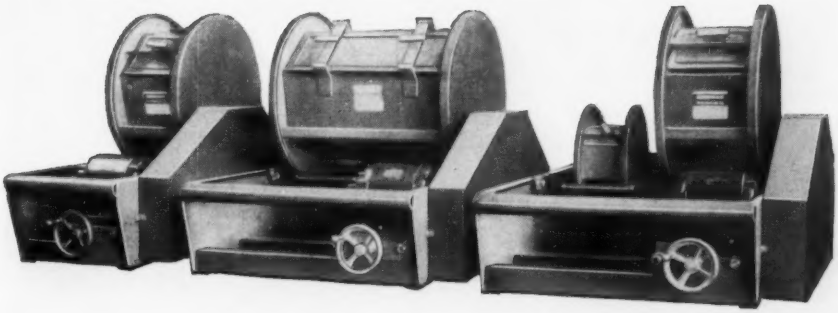
Ultrasonic Cleaning Unit

National Ultrasonic Corporation has introduced Model 140, an ultrasonic

(continued)



Model 140 Ultrasonic Cleaning Unit: for use where average energy levels are required



pack big finishing capacity in small portable machines

Here are the lowest cost machines available anywhere for portable, precision finishing. They give you more versatile, flexible capacity than ever before. They are fast, rugged, quality-built to the same precision standards of larger, more costly machines.

The features: install just one basic drive unit, then select barrels in any combination to fit your needs. Loading or unloading of barrels is fast—just lift them off the neoprene drive rollers. Dual drive shafts, safety enclosed belt and pulleys, and 20 to 46 rpm variable speed drive give you real performance. And you can choose your barrel size from 2 quarts, 0.5 and 1.1 cu. ft. capacity. Cost is surprisingly low.

The details: Send today for complete data on the Model RA machines, Rampe Manufacturing Co., 14915 Woodworth Ave., Cleveland 10, Ohio.

Industry's Most Complete Line

RAMPE

PRECISION BARREL FINISHING MACHINES

For more data circle 383 on Postpaid Card

cleaning unit, for use where average ultrasonic energy is required. This cleaner has a stainless steel tank 14¾ inches long, 11¾ inches wide and 10 inches deep with 27.5 per cent of the bottom covered with crystals. Actual radiating surface is 48 square inches.

The 115-volt a.c. single-phase 60-cycle generator is designed for continuous operation, delivers 250 watts average with peaks of 1000 watts. One-tube oscillator, front-panel switching, forced-air cooling and 3-wire ground protection. The unit can be adjusted to available line voltage and is interlocked for safety.

Manufacturer: National Ultrasonic Corporation, 111 Montgomery Ave., Irvington, N. J.

For more data circle **24** on Reader Service Card

★ ★ ★

Alkaline Derusting Process

Endox, a patented alkaline solution for derusting and descaling steel and activating it for plating has been developed by Enthone, Inc., subsidiary of American Smelting & Refining Company. The process removes rust, scale, carbon smut, oxides and light soil from iron and steel alloys by electrolytic treatment in the solution at room temp.

Complete preparation of steel for plating in one simple step is possible with this alkaline process.

Either of two new products, Endox 209 or Endox 214, can be used to make up the processing solution. Endox 209 is superior for scale removal while Endox 214 is preferable where heavy rust is present. Electrolytic treatment

(continued)

Sicon®
HEAT RESISTANT FINISH

PROTECTS ENGINE SHROUDS OF THE
MARTIN MATADOR

When USAF TM-61 Martin Matadors are recalled for servicing and refinishing, SICON Silicone finish is specified because it meets the performance required.

Sicon's ability to withstand high temperatures up to 1000°F. without breakdown has won an enviable name for itself in the aircraft industry, as well as in many others.

Write for new SICON Bulletin—Dept. No. B-6.

MIDLAND
INDUSTRIAL FINISHES COMPANY
WAUKEGAN • ILLINOIS
ENAMELS • SYNTHETICS • LACQUERS • VARNISHES

For more data circle 384 on Postpaid Card

Spring Clamp Cathode Hook improves plating – avoids rejects

Powerful spring tension assures uninterrupted flow of plating current to the cathode rod from articles being plated — avoids the partial plating and costly rejects that so often occur when you depend on gravity for contact pressure.

The Spring Clamps also hold racks rigidly where you put them on the cathode rod — they cannot creep together even with "sway-back" rods and rod agitation.

The Spring Clamp Hooks bolt to any rack. No need to get a Spring Clamp Hook for every rack — just change the hooks from idle racks to the racks in use.

Order Spring Clamp Cathode Hooks today! Enjoy the unstinted flow of plating current through articles being plated. Notice the superior plating and elimination of rejects.

Locks rigidly
Just squeeze to put on or take off

Made for rack spines of all sizes and makes

Made for 1", 1¼", 1½" and 2" Cathode Rods

When ordering please specify

1. Diameter of cathode rod
2. Maximum amperage required by rack

MANUFACTURING COMPANY
947 N. Cicero Ave., Chicago 51, Ill.
EVERYTHING FOR PLATING PLANTS

For more data circle 385 on Postpaid Card

with either direct or periodic-reverse current can be employed.

The Endox bath can be maintained indefinitely by periodic analysis and replenishment and by occasional removal of precipitated sludge. Since the bath is seldom dumped, it is economical to operate.

Manufacturer: Enthone, Inc., 442 Elm St., New Haven, Conn.

For more data circle **25** on Reader Service Card

★ ★ ★

Spindle-Type Barrel Finishing Equipment

Spindle-type barrel finishing equipment is now available from Techline Division, Wheelabrator Corporation.

Techline spindle machines will be available with four, eight or 16 spindles of the indexing type or four spindles of the non-indexing type. Power from 5 to 30 h.p. Built to accommodate parts up to 12 inches in diameter.

In this type of equipment, the media mass rotates in one direction while the spindles rotate and index in the opposite direction. The average time required for finishing is approximately five minutes.

Potential applications for spindle-type equipment include deburring and radiusing of precision parts where tolerance is critical, as in gears, camshafts, bearing raceways, jet engine and turbine buckets and blades.

Manufacturer: Techline Division, Wheelabrator Corp., 1155 Avenue V, Vicksburg, Mich.

For more data circle **200** on Reader Service Card

★ ★ ★

Epoxy-Bitumen Coating

Shell Chemical Corporation has developed an Epon Resin-Bitumen coating especially suited for use as a corrosion-resistant coating for pipe and other metal equipment and as a coating for concrete surfaces.

(continued)

CRES-LITE
BRONZE POWDERS
are Pure, Brilliant, Metallic, Bronze!
* and you can tell

* by the brilliant sheen and full-bodied lustre!
* by the greater coverage—at less cost per square inch of finished product.

Unequalled for smoother, more brilliant Plated-Effect Finishes—by spray, dip or flow coating.

IN STOCK—tremendous selection of colors including popular metallic pastels, statuary and antique shades.

COLORS MATCHED—with no variance in quality, color or lustre from batch to batch. Fast service guaranteed.

SPECIAL COLORS—Over 25 years experience in creating special colors and shades for the plastic and metal finishing trades. Satisfaction assured.

NEW COLOR CARD
Just Off the Press—FREE!
You haven't seen anything until you've seen this full range of colors—for immediate delivery.

CRESCENT BRONZE POWDER CO.
118 W. ILLINOIS STREET, CHICAGO 10
1841 S. Flower St., Los Angeles 15

For more data circle 386 on Postpaid Card

One of the fastest computing systems ever developed, the UNIVAC Solid-State Computer performs at internal speeds commonly associated with large-scale equipment. Its remarkable speed and storage capacity enable the UNIVAC Solid-State Computer to eliminate much pre-sorting and pre-collating...and combine calculating, reproducing, gang-punching, data-collation, and tabulating in a single run. Each UNIVAC SSC contains over 1,400 printed circuits plated with AUTRONEX ACID GOLD.

REMINGTON RAND USES AUTRONEX* ACID GOLD PROCESS TO PLATE UNIVAC PRINTED CIRCUITS

Remington Rand, Division of Sperry Rand Corporation, Utica, New York, uses the AUTRONEX ACID GOLD PROCESS to plate printed circuit boards for their world-famous UNIVAC Solid-State Computer Systems and Equipment. Installation of the patented AUTRONEX ACID GOLD PLATING PROCESS for this work, "...totally eliminated resist failures and rejects in the electroplating phase," according to a report from Remington Rand's Supervisor of Chemical Engineering.

This report goes on to say that "AUTRONEX ACID GOLD in printed circuit production offers definite advantages and promotes the highest quality production." Here are some of these advantages proved in Remington Rand's own laboratories:

1. Harder and more wear-resistant surfaces.
2. Elimination of one step in plating cycle — no cyanide gold strike required.
3. Promotes higher bond strength of circuit to dielectric base material by minimizing danger of damaging the adhesive layer.
4. Solder flow through plated holes is definitely better, thereby improving over-all quality.
5. AUTRONEX ACID GOLD has totally eliminated circuit lifting and rejects on boards plated after etching. Formulations used previously attacked the adhesive and undermined the circuit paths.

The conclusion of the report we have been quoting needs no further comment: "We would like to commend the manner in which your company has serviced us in regards to materials, equipment and valuable advice. In many instances your promptness in making equipment and materials delivery has been instrumental in meeting vital production target dates."

The patented AUTRONEX ACID GOLD PLATING PROCESS has production-proved its unique advantages for over two years in the plants of leading manufacturers the world over. AUTRONEX can help *you* make a better, more reliable product—probably at far less cost than with any gold plating formulation you may be presently using. Evaluate AUTRONEX ACID GOLD ELECTROPLATE in your own plant, *on your own product*. We'd be happy to plate sample parts for you at no obligation. Write...wire...or 'phone. We'll make all the arrangements.

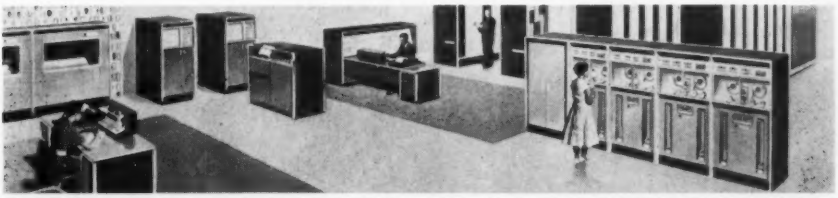
*Trademark for Sel-Rex patented Acid Gold Plating Process

Sel-Rex®

PRECIOUS METALS DIVISION

SEL-REX CORPORATION

NUTLEY 10, NEW JERSEY



The world's fastest and most advanced electronic data processing system for business and scientific use, the UNIVAC Larc Solid-State computer, by the Remington Rand Division, Sperry Rand Corporation. The new system, which operates up to 200 times faster than any computer in existence, can perform 250,000 additions and subtractions of 12-digit decimal numbers per second.

For more data circle 387 on Postpaid Card

Based on Epon 828 and Bitumen C, a compatibilized bitumen which Shell Chemical will market, the coating has greater chemical resistance than existing epoxy-coal tar enamels, Shell says. Two-month immersion tests showed it to be unaffected by many acids and other corrosive materials, Shell reports.

Because of its excellent adhesion, toughness, and resistance to water, it is also suitable for use on exterior and interior concrete walls below ground level, roofs, silos, hopper cars and other railroad rolling stock.

Manufacturer: Shell Chemical Corp., 50 W. 50th St., New York 20, N. Y.

For more data circle **26** on Reader Service Card

★ ★ ★

Fast-Dry Paints

A resin recently developed by Archer-Daniels-Midland Co. makes it possible for formulators of industrial finishes to produce enamels that air dry with the speed of lacquer.

The resin, Aroplaz 6006, is described as a pure oxidizing oil-modified alkyd. Paints formulated with it dry tack free in five minutes, can be tape-tested for adhesion within one hour and recoated upon themselves within 10 minutes to eight hours and from 72 hours on.

Other properties of finishes formulated with this resin:

- Resist gasoline, lubricating oils, other common solvents after thorough drying.
- Good durability, gloss retention, color retention.
- When force dried or baked, develop the hardness and mar re-

(continued)

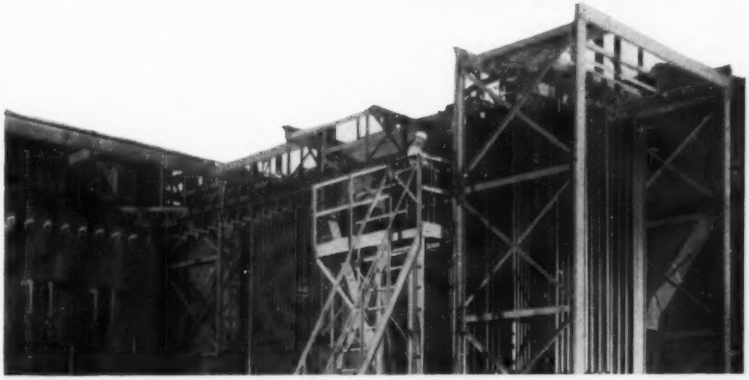
Coming Soon!
1960 PRODUCTS FINISHING DIRECTORY

SPRA-CON
COMPLETE FINISHING SYSTEMS
POWER SPRAY WASHERS
DRYING OVENS
PAINT BAKING OVENS
FLOW COAT MACHINES
AIR REPLACEMENT SYSTEMS
CONVEYORS
SEND FOR FREE CATALOG
the SPRA-CON COMPANY
3600 ELSTON AVE. • CHICAGO 18, ILLINOIS
For more data circle 388 on Postpaid Card

Produce dense, complex

FERROPHOSPHOMOLYBDATE

conversion coatings on steel . . .



Sheets of ribbed steel roof decking are shown being loaded on a conveyor, from a loading platform 25 feet above the floor, at Granite City Steel Company, Granite City, Illinois. The sheets are then cleaned, Keykoted with Kelite KEY-KOTE® 25, and prime painted.

Kelite Keykote® 25 is patented, powdered composition which produces dense, complex ferrophosphomolybdate coatings of high quality from its water solutions.

It operates in the pH range of 2.7 to 4.0, uniquely low for a powdered composition. This helps account for its rapid, high quality coating formation and its low consumption. The result is superior paint bonding and corrosion resistance at low cost.

Application procedures are adaptable to a wide range of equipment: one to six stage spray washers, immersion, and steam Keykoting.

For further information or a Product Bulletin, contact the nearest Kelite office listed below.

KELITE CORPORATION

• Los Angeles 12 • Chicago 45 • Berkeley Heights, N. J.

For more data circle 389 on Postpaid Card

sistance of high-baked melamine systems in use today.

Typical applications: farm and construction machinery, trucks, trailers, cabinets, metal furniture, toys.

Manufacturer of resin: Archer-Daniels-Midland Co., 700 Investors Bldg., Minneapolis 2, Minn.

For more data circle **27** on Reader Service Card

Rust Preventives

The Mitchell-Bradford Chemical Co. has announced three rust preventive products: composition 15 for cast and malleable irons, sintered metals and steel, and composition DR and composition DS for steel.

Composition 15 is a rust preventive liquid that is added to either hot or cold water rinses to prevent rusting of cast and malleable irons, sintered metals and steel during processing. It is especially adapted to porous metals, which in most cases will rust immediately after rinsing, especially after pickling operations. Because there is no residue left on the surface of the metal, organic coatings can be applied to the surface without further treatment and without detrimental effect on the adhesion of the coating, Mitchell - Bradford reports.

Composition DR is a rust preventive to be added to hot or cold water rinses to facilitate drying and add corrosion resistance to a steel surface. This product is designed to be used in tumbling-barrel rinses to

(continued)

8 FLOORS

120,000 SQUARE FEET

JAMMED

WITH THE COUNTRY'S GREATEST VALUES IN PLATING, POLISHING and SPRAY PAINTING EQUIPMENT

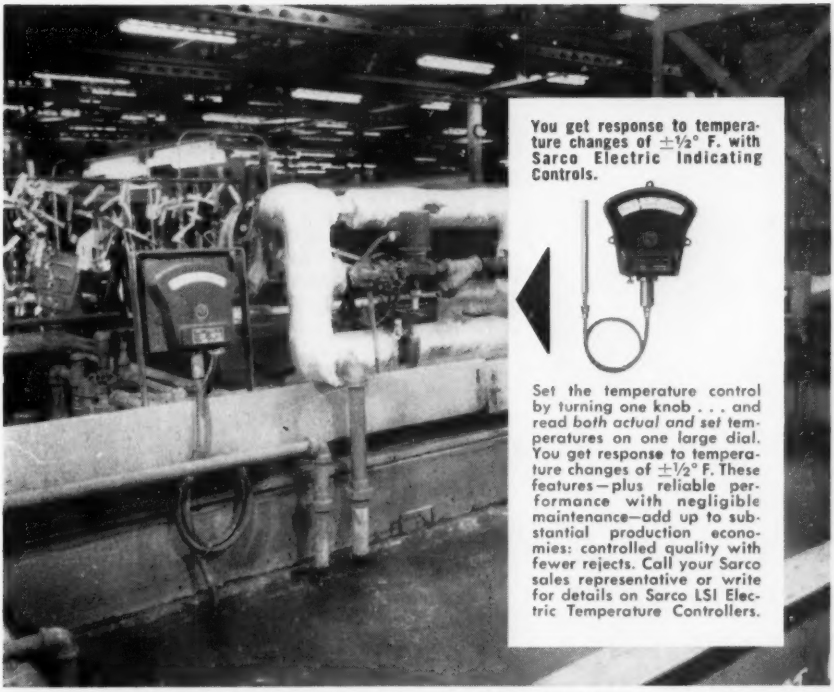
- Agitators
- Air Compressors
- Anodizing Equipment
- Barrel Finishing Equipment
- Belt Polishing Machines
- Blowers
- Centrifugal Dryers
- Circulating Pumps
- Degreasers
- Ducts
- Dust Collecting Systems
- Electropolishing Equipment
- Filters
- Furnaces and Ovens
- Generators
- Heaters
- Paint Spray Equipment and Accessories
- Plating Units, Semi and Full Automatics
- Rheostats and Controls
- Rectifiers: Selenium, Germanium, Silicon-Type
- Sand Blasting Equipment
- Tanks: Metal, Lead, Rubber and Plastic Lined, Wood . . . **AND MORE!**

BOTH NEW and REBUILT . . . including such well known names as ALSOP, INDUSTRIAL FILTER, BLAKESLEE CHANDEYSSON, HULL, GLO-ROD, KOCOUR, KREIDER, HVWM, LASALCO, PACKER, BELKE, UDYLITE and many others.

Since 1905, A One-Stop, From-Stock Source For New and Rebuilt Plating, Polishing and Spray Painting Equipment.

J. HOLLAND & SONS, INC. 477 KEAP ST., BROOKLYN, N.Y., U.S.A. • Telephone: EVergreen 7-3315

For more data circle 390 on Postpaid Card 1JH59C


You get response to temperature changes of ±½° F. with Sarco Electric Indicating Controls.
Set the temperature control by turning one knob . . . and read *both actual and set* temperatures on one large dial. You get response to temperature changes of ±½° F. These features—plus reliable performance with negligible maintenance—add up to substantial production economies: controlled quality with fewer rejects. Call your Sarco sales representative or write for details on Sarco LSI Electric Temperature Controllers.

At the Stratford, Conn., plant of Sikorsky Aircraft Division of United Aircraft Corporation, the parts finishing department uses Sarco Electric Indicating Regulators to control the temperature of baths for cleaning, anodizing, etching and rinsing of precision helicopter parts.

How Sikorsky controls temperatures in 50 process tanks with Sarco Electric Indicating Regulators

Fifty process tanks are used for parts finishing at the Stratford, Conn., plant of Sikorsky Aircraft—and temperatures in each are controlled accurately and automatically with Sarco Electric Indicating Regulators. In bath temperatures which range from 95° F. to 210° F., Sikorsky easily holds the temperature to close tolerances for rinsing, etching, anodizing and caustic cleaning of precision helicopter parts. Sikorsky reports that maintenance of their Sarco Electric Indicating Regulators is practically zero. 9777F

SARCO
COMPANY, INC.
635 Madison Ave., New York 22, N. Y.

For more data circle 391 on Postpaid Card

STAMPINGS VACUUM METALLIZED

BRIGHT FINISH . . . LOW COST . . . HIGH QUALITY

Now you can eliminate your high polishing and plating costs and obtain the same results by hi-vacuum.

METAPLAST has the "know-how" and specially built equipment to handle large production runs at low prices. Finishes have been successfully applied in the lamp, cosmetic and houseware industries.

Write for further details.

Pioneers in Vacuum Metallizing since 1947
METAPLAST PROCESS, INC.
34-51 56TH STREET
Woodside, L. I., New York

For more data circle 392 on Postpaid Card

facilitate drying, eliminate staining and add corrosion resistance to the steel surfaces. Composition DS is available for power washers.

Manufacturer: Mitchell-Bradford Chemical Co., Wampus Lane, Milford, Conn.

For more data circle **28** on Reader Service Card

★ ★ ★

PVC Nozzles

Delavan Manufacturing Company has announced that all of its standard line of WF flat spray industrial nozzles will now be available in polyvinyl chloride (PVC).

PVC Nozzle

Polyvinyl chloride was selected because it provides excellent resistance to the acids, alkalies, salt solutions and alcohols. The WF nozzles are designed to offer maximum service life under highly corrosive conditions and provide for high operating pressures at temperatures up to 180 deg. F. They will be furnished in ⅛-, ¼-, ⅜-, ½- and ¾-inch male pipe thread.

Prior to this time, Delavan type WF nozzles were available in brass, mild steel and type 303 stainless steel, all of which will be continued.

Manufacturer: Delavan Manufacturing Co., 811-4th St., West Des Moines, Iowa.

For more data circle **29** on Reader Service Card

★ ★ ★

Vibratory Finishing Machine

An economical vibratory-type finishing machine has been developed by Almco, Queen Products Division, King-Seeley Corporation.

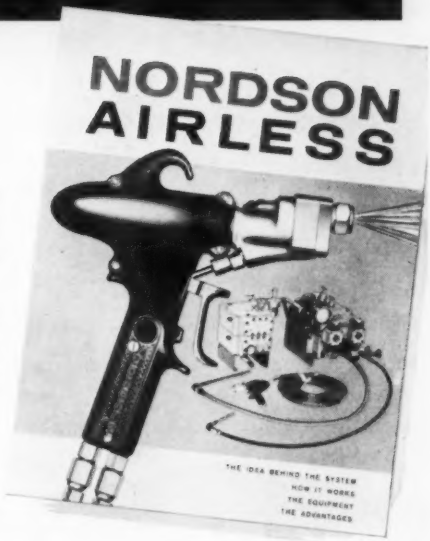
Model VT-72 Vibrasheen is useful in deburring, descaling, cleaning, bur-

(continued)

if you spend more than $100 per week for paint or other coatings, you should...

find out about

NORDSON HOT AIRLESS SPRAY PAINTING



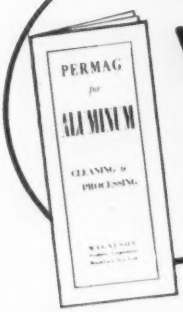
The Nordson Hot Airless System can save you up to 30% on paint or other coating materials and on labor too! Less expensive spray booths and exhaust systems are needed. Clean up and housekeeping costs are reduced and at the same time finishing quality is improved.

Find out how Nordson Hot Airless can pay off for you, in savings and in improved quality. Write today!

NORDSON CORPORATION
88 Jackson St., Amherst, Ohio

For more data circle 393 on Postpaid Card

DON'T BE WITHOUT YOUR GUIDE TO ALUMINUM PROCESSING CHEMICALS



YOURS FREE!

It contains 6 important sections:

- Aluminum and its Alloys
- Cleaning Operations for Aluminum
- Etching Aluminum
- Stripping Anodic Coat
- Paint Stripping from Aluminum
- Cleaning Aluminum before Anodizing

WRITE FOR YOUR FREE COPY TODAY

MAGNUSON
PRODUCTS CORPORATION
50 COURT ST., BROOKLYN 1, N. Y.

For more data circle 394 on Postpaid Card

nishing and surface refinement. Cycle times required for these operations are said to be short. The unit has a 2½-cu. ft. capacity and a standard vibrating frequency of 3380 cycles per min.

Almco states that the VT-72 activates 100 per cent of the parts and media in the tub. In many instances,

Almco Model VT-72 Vibratory Finishing Machine finishes metal parts quickly. The economy model Vibrasheen occupies only 5½ square feet, holds a 2½-cubic-foot load.

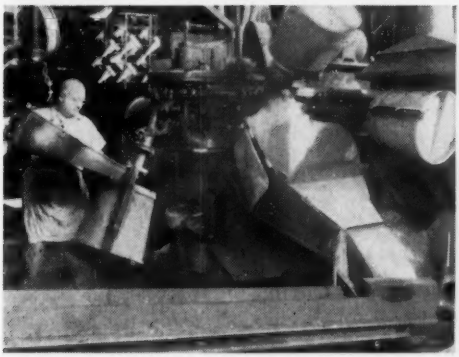
parts having internal burrs can be completely deburred, since the media vibrates within holes and crevices.

An air-actuated cylinder controlled by a manually operated valve pivots the tub through an arc of 130 degrees for easy loading and unloading.

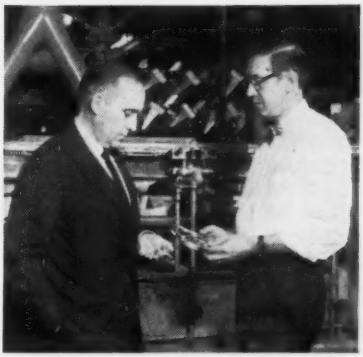
Optional features include the Almco Hoist Pan to facilitate loading and a variable-speed drive which makes pos-

(continued)

WHICH CONVERSION COATING TO USE?



Unloading ends of barrel and rack automatic machines



Henry Blessing inspecting hardware products after treatment

STANLEY HARDWARE CHOOSES KENVERT® NO. 17A

At The Stanley Works in New Britain, Connecticut, one of many satisfied customers, Foreman, Henry Blessing, has several reasons for using KENVERT NO. 17A. Included are:

1. Uniform bright work from day to day without staining on difficult parts such as assembled hinges
2. Good corrosion protection
3. Improved product finish with substantial cost reduction
4. Easy solution maintenance

KENVERT 17A, the premium powder, guarantees the best in brightness, corrosion protection, bath life and uniformity of finished product in a single dip treatment. Won't you discover the advantages .....

NEW! Permanent zinc brightner for barrel or rack work—KENVERT 15BR. Test samples available.

CONVERT TO KENVERT

CONVERSION CHEMICAL CORPORATION

99 East Main Street, Rockville, Connecticut, Phone: TRemont 5-3357

Kenvert manufactured by Nicromatic Ltd., Toronto, Canada

24 Distributors in major industrial United States cities

KENVERT PRODUCTS SOLVE UNUSUAL METAL FINISHING PROBLEMS

For more data circle 395 on Postpaid Card

sible vibrating frequencies of 600 to 3380 cycles per min.

Manufacturer: Almco, Queen Products Div., King-Seeley Corporation, 812 E. Main St., Albert Lea, Minn.

For more data circle **30** on Reader Service Card

★ ★ ★

Emulsion Cleaner

Emulsion Cleaner No. 1409 is a stable emulsion that is not sensitive to alkali drag-in in multiple-tank cleaning installations. Will not foam in spray cleaning machines. pH, 8. Flash point, over 250 deg. F. Good hard-water tolerance. Recommended for cleaning and rust protection.

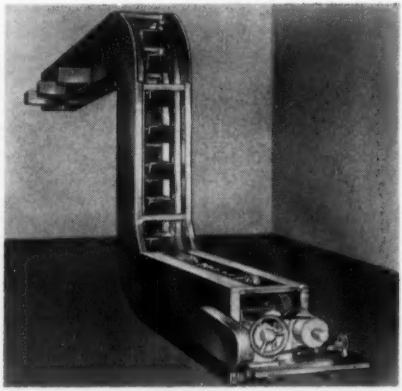
Manufacturer: Solventol Chemical Products Co., 15841 Second Blvd., Detroit 3, Mich.

For more data circle **31** on Reader Service Card

★ ★ ★

Conveyor Control

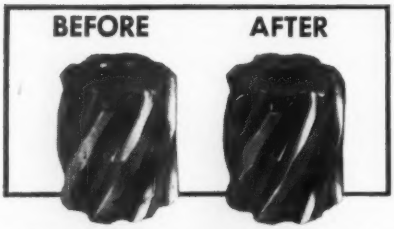
Econ-O-Veyor Corporation has developed a simple, automatic dump control for the buckets of the Econ-O-Lift "Gentle-Action" elevator. This single control enables one Econ-O-Lift unit to service many bins or hoppers.



Conveyor Control: for dumping buckets

The dump control consists of a

(continued)



3 hand operations were eliminated by the Vibraslide machine in finishing this 21 oz. steel pinion gear.

ELLIOTT
VIBRASLIDE
BARREL FINISH EQUIPMENT

. . . saves time, cuts cost, better results

The *secret*: Vibration-with-rotation action, unique in Vibraslide finishers.

The *results*: Forgings, castings, machined parts and stampings finished faster than ever, recessed areas and internal surfaces finished more effectively than ever; distortion, impingement damage, nicking and scratching reduced to the minimum yet achieved. Vibraslide finishers are now being used by some of America's leading industries.

distributed by
metal finish, inc. 410 Frelinghuysen Ave.
Call or Write for Demonstration Bigelow 2-6211 Newark, N. J.
For more data circle 396 on Postpaid Card

SHARP SHAPES

SHALLOW SHAPES

SPECIAL SHAPES

Any unusual shape plates brighter and smoother with new, improved

COPPER-LUME

Bright copper plating of "problem" shapes *used to be* a tricky operation! Now, you can give *any* shape a bright, dependably uniform copper finish with COPPER-LUME, the remarkable new bright cyanide copper process by H-VW-M.

COPPER-LUME deposits a uniformly bright coat that makes an ideal base for nickel-chromium deposits. And, whenever required, COPPER-LUME buffs beautifully to maximum brightness in minimum time!

Want to know more about better copper plating with COPPER-LUME? Write today for complete details.

Hanson-Van Winkle-Munning Company, Matawan, New Jersey.
Offices in Principal Cities.

Alert Supply Company is H-VW-M in the West.
Los Angeles • San Francisco

H-VW-M

Progress in metalfinishing through advanced processes • equipment

COPPER LUME—U.S. PATENTS 2881121, 2881122

For more data circle 397 on Postpaid Card

nylon-covered cam which can be moved into position to cause buckets to dump their contents. The cam is activated by means of a single solenoid, and can be under the control of a material level indicator connected to the bin or hopper. As soon as the materials in a bin fall under a certain predetermined level, the solenoid switches the cam into position, and buckets reaching this bin will begin to dump. As soon as the predetermined high level is reached in the bin, the solenoid again is activated automatically, switching the cam out of position, and the buckets will not dump at this bin.

Coupled with the other features of the Econ-O-Lift bulk elevator conveyor, the dump control makes it possible for one Econ-O-Lift to receive material automatically at a loading point, and distribute the material automatically between any desired number of hoppers or bins, without an operator.

Manufacturer: Econ - O - Veyor Corp., 224 Glen Cove Ave., Glen Cove, N. Y.

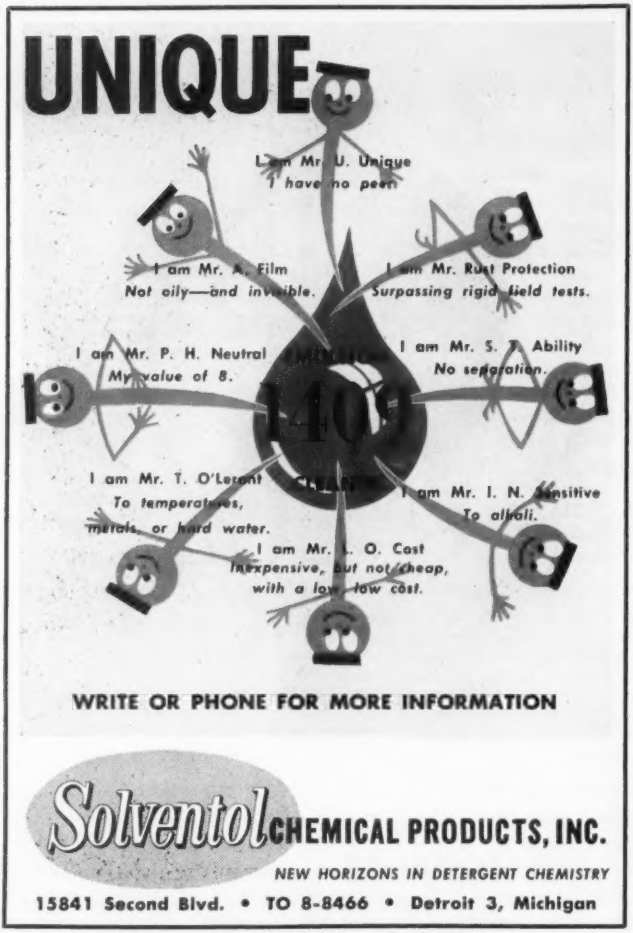
For more data circle 32 on Reader Service Card

★ ★ ★

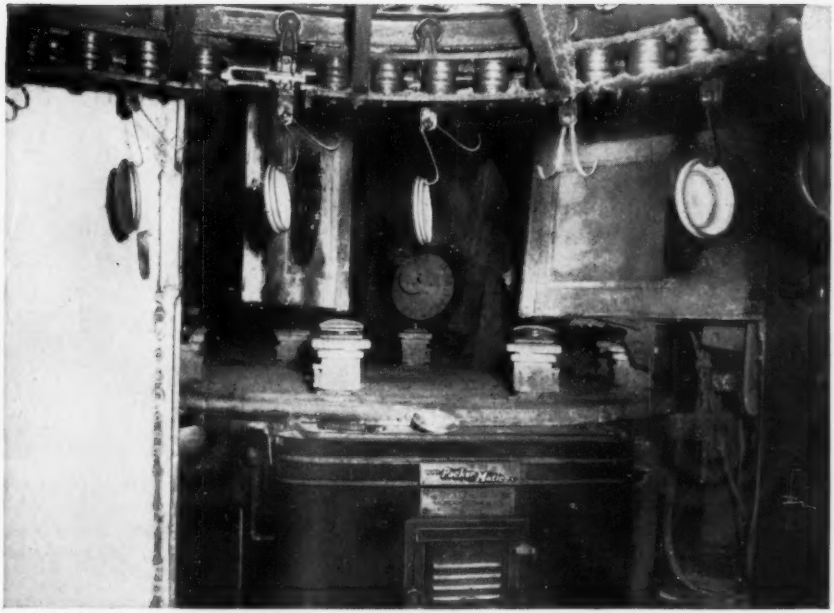
Work Gloves

The Surety Rubber Company has introduced work gloves with a "Silvertex" coating that is said to provide maximum resistance to most industrial chemicals. "Silvertex" is also snag and abrasion resistant and its reflective quality helps to keep the worker's hands cool and

Silvertex Gloves


UNIQUE
I am Mr. U. Unique
I have no peer
I am Mr. A. Film
Not oily—and invisible.
I am Mr. Rust Protection
Surpassing rigid field tests.
I am Mr. P. H. Neutral
My value of 8.
I am Mr. S. T. Ability
No separation.
I am Mr. T. O'Lerant
To temperatures,
metals, or hard water.
I am Mr. I. N. Sensitive
To alkali.
I am Mr. L. O. Cost
Inexpensive, but not cheap,
with a low, low cost.
WRITE OR PHONE FOR MORE INFORMATION
Solventol CHEMICAL PRODUCTS, INC.
NEW HORIZONS IN DETERGENT CHEMISTRY
15841 Second Blvd. • TO 8-8466 • Detroit 3, Michigan

For more data circle 398 on Postpaid Card



24 million pot lids can't be wrong!

Ask your wife. She will tell you about famous Revere Ware. Probably best known by their copper bottoms, the durable luster of pots and pans by Revere is taken for granted.

"Taken for granted" is exactly the phrase applied to the 3 Packer-Matic polishing and buffing units in Revere's Rome, N. Y. plant by Mr. F. W. Merry, Assistant Works Manager. "We feed them and our Packer-Matics do the rest," says Mr. Merry. "They haven't failed us in 23 years of high production rate operation." "They get a good clean up twice a year and that's about the extent of our maintenance."

Achieving highly reflective finishes on pot lids is only one of hundreds of polishing, deburring, buffing and cleaning applications Packer-Matics have handled since Mr. Clifford I. Packer turned out his first unit in 1927. Chances are we can help you in your finishing operations, too. Send us samples with your specifications or blueprints and see.

Production reliability makes Packer-Matic the choice of companies like Revere Copper and Brass Inc.

COPPER CLAD STAINLESS STEEL 18 01 REVERE WARE

PACKER-MATIC

THE PACKER MACHINE COMPANY • MERIDEN, CONN.

Pioneer Manufacturers of Automatic Polishing & Buffing Machines

For more data circle 399 on Postpaid Card

comfortable. The coating will not crack or peel and remains pliable for the life of the glove, Surety reports.

Manufacturer: The Surety Rubber Co., Carrollton, Ohio.

For more data circle **33** on Reader Service Card

★ ★ ★

Small Flat Polisher

Murray-Way Corporation recently introduced a small flat polisher with many of the design features of the company's larger machines.

The abrasive belt machine grinds, polishes and deburrs flat products with cross sections up to 12 by 4 inches. It handles coils, sheets, bars, blanks, castings. Belts are 6 to 12 inches wide, 111 inches long.

Engineering features: automatic air control of belt tension and oscillating idler roll pressure; a hand wheel on the outside of the machine to adjust for changes in stock thickness; manually operated air valve to aid in changing belts; an ammeter that shows the operator motor load; and neoprene

(continued)

Murray-Way Junior Flat Polishing Machine

PAINT STRIPPER

THE NEW MIRACLE

STRIPEX #153

NO HEAT NECESSARY!

A mild steel tank is all that is required. Strips All Types of Baked Enamels.
Some Baked Coatings are Stripped Clean in a matter of Seconds.
Excellent for stripping vacuum metallizing racks.

DYTEX CHEMICAL COMPANY

DYTEX

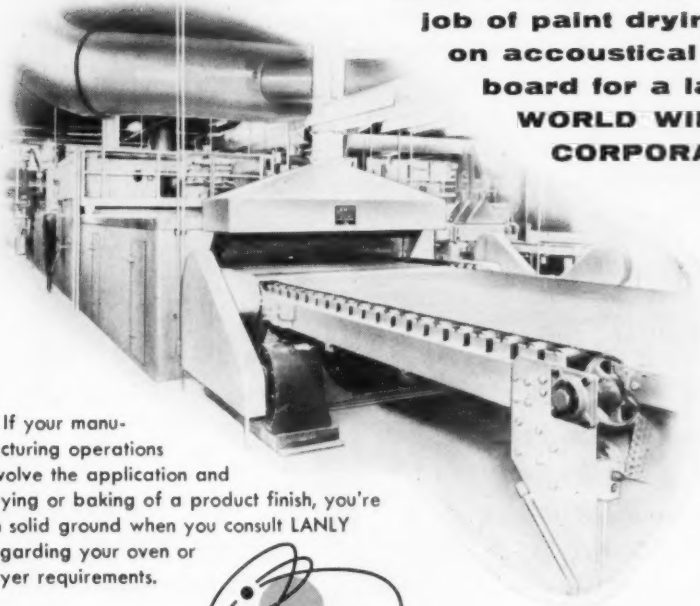
Chemical Specialties

PROVIDENCE 3, Rhode Island

For more data circle 401 on Postpaid Card

This Lanly Conveyorized Lay-Down-Dryer

does an efficient job of paint drying on accoustical board for a large WORLD WIDE CORPORATION



If your manufacturing operations involve the application and drying or baking of a product finish, you're on solid ground when you consult LANLY regarding your oven or dryer requirements.

Find Your Representative In The Yellow Pages

THE Lanly CO.

FINISHING OVENS

2800 Euclid Avenue • Cleveland 15, Ohio

LANLY welcomes a discussion of your drying and baking operation problems. Write for Catalog No. 560 and get better acquainted with our organization.

Atlanta, Georgia • Birmingham, Ala. • Boston, Mass. • Chicago, Ill. • Cleveland, Ohio
Columbia, So. Carolina • Columbus, Ohio • Detroit, Mich. • Houston, Texas
Pittsburgh, Pa. • Rochester, N. Y. • San Francisco, Calif. • St. Louis, Mo.

For more data circle 402 on Postpaid Card

rolls that can be dressed in the machine at operating speeds.

Manufacturer: Murray-Way Corporation, P. O. Box 180, Maple Rd. East, Birmingham, Mich.

For more data circle **34** on Reader Service Card

★ ★ ★

Flow-Regulating Device

Flow Regulator

A flow-regulating device which automatically permits a specified rate of flow regardless of inlet pressures has low pressure drop because of its unusual design, the manufacturer says.

For hot or cold water, the L-P-D Mesurflo is available in 49 flow rates from 0.2 g.p.m. to 50 g.p.m. Flow tolerances are maintained to 180 p.s.i. and temperatures to 160 deg. F.

This device operates noiselessly at any pressure, is useful for time-fill applications, water-conservation requirements, stream regulation, in balanced-flow systems and for producing specific flows to a variety of units from one source of supply.

Manufacturer: Automatic Controls Division, Hays Manufacturing Co., Erie, Pennsylvania.

For more data circle **35** on Reader Service Card

★ ★ ★

Barrel Finishing Machine

The Finishmaster is a horizontal barrel finishing machine that is low enough (less than four feet) so that all loading and unloading equipment can be carried over the top of the machine. Built for heavy service with ¼-inch steel plate on the frame. Lightweight doors of armor plate can be lifted by hand. Barrel guard swings

(continued)

Electro-polishing

Concentrates for

- Aluminum and Alloys
- Copper and Alloys
- Carbon Steels
- Stainless Steels
- Plus Custom Concentrates for other metals

for fast, low cost

- Burr Removal
- Size Control
- Corrosion Resistance
- Micro-Inch Improvement
- Electro Machining
- Electroplate Adhesion

Electro-Glo

Electro-Glo produces finishes from satin to mirror-bright. We'll be glad to process your sample. Electro-glo offers nationwide service and delivery in carboys, drums and tank trucks.

Electro-Glo Company, 621 South Kolmar Ave., Chicago 24, Ill.

For more data circle 403 on Postpaid Card

Completely new principle produces a stabilized, precision-metered curtain which coats ultra-smoothly at high speeds

How the NEW *GASWAY* *Kinetic-Kurtain* Coater

helps you improve finish, save material and increase production

A new precisely metered gravity curtain of material! That's what gives you an ultra smooth coating film deposit at high speeds. Ends material loss . . . produces faster . . . smoother film . . . fast color changes . . . previous settings exactly duplicated . . . only two easy adjustments . . . many standard paints and finishes can be applied. Here is the finishing man's dream – fast, efficient, economical coating. Find out about this dramatic new machine today.

- Coats all materials
- Speeds from 50 to 450 FPM
- Applies many different finishes
- Explosion-proof design
- Coats up to 65" widths

25 Years' Experience In The Finishing Field

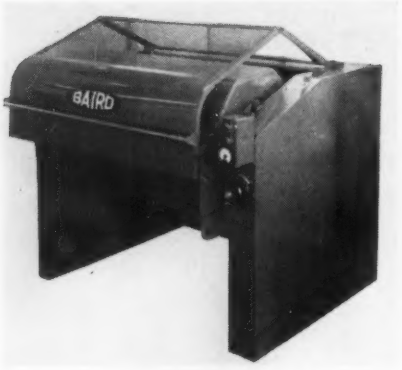
SEND FOR COMPLETE INFORMATION

Complete booklet gives details, specifications, recommendations. All the information you need to let you decide what Kinetic-Kurtain Coating can do for you. Write today for free booklet.

GASWAY CORPORATION

**6463 N. RAVENSWOOD AVE.
CHICAGO 26, ILLINOIS
SHELDRAKE 3-1414**

For more data circle 404 on Postpaid Card



"Finishmaster" Horizontal Barrel Finisher

out of the way to facilitate loading. Variable-speed drive, 8 to 24 r.p.m.; Brake motor holds barrel in position. Limit switch permits jogging (but not running) of barrel when guard is raised. Automatic timer, automatic pressure-relief valve in cover, barrel-speed controls, drive unit that contains heavy-duty helical-gear speed reducer. Total capacity: 2,000 pounds.

Manufacturer: Baird Machine Co., Stratford, Conn.

For more data circle **36** on Reader Service Card

★ ★ ★

Work Clothing

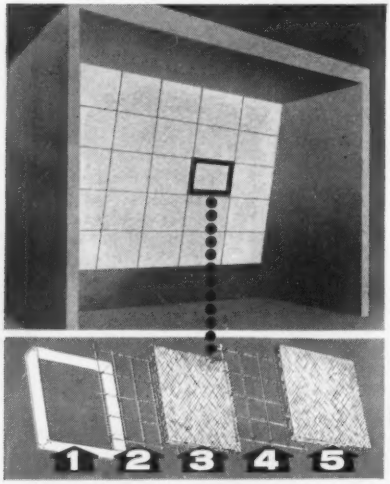
Nylon coveralls with attached boots are now being manufactured on special order by M. Setlow & Son, Inc.

The garments are made from white nylon pack cloth and are available either with plastic buttons or zipper front closing. No pockets.

The boot is formed by continuing the back panel of the leg until it meets the sole of the boot, and by shaping the front panel of the leg to form the front of the foot. The sole is made from three thicknesses of the nylon material, cross stitched for strength.

Manufacturer: M. Setlow & Sons, Inc., 131 Chestnut St., New Haven, Connecticut.

For more data circle **37** on Reader Service Card



A Paint Arrestor module consists of a Holding Frame (1), two Snap-in Grids (2 and 4), two Paint Arrestors (3 and 5). Loaded Paint Arrestors are simply replaced as necessary. And, they're also ideal for air-borne ink, mist, dye, frit, etc.

CONTROL PAINT OVERSPRAY the inexpensive, effective way!

The advantages of R P Paint Arrestors, the inexpensive, disposable air filters are many. Overspray solids are trapped before they reach the exhaust stack... to reduce fire hazards, damage to adjacent property... disagreeable and time-consuming maintenance work. Installation? —easy and fast. Maintenance? —remove loaded Paint Arrestor and replace a new one. Adaptability? —ideal for any type, any size booth, new or existing.

RP PAINT ARRESTORS

RP Products of Research

UL Listed

RESEARCH PRODUCTS Corporation

Dept. 38, MADISON 1, WISCONSIN

For more data circle 405 on Postpaid Card

"... increased production paid for our MIJI-LIF in one month!"

THE

MAGNUS MIJI-LIF

FOR BETTER CLEANING AT LOWER COST

AIR OPERATED, MOTORLESS AND GEARLESS.

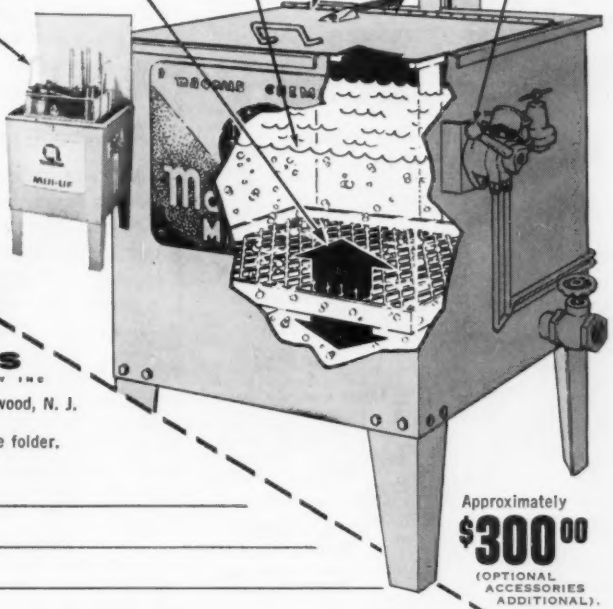
SINGLE LEVER CONTROL LOWERS, AGITATES AND RAISES THE WORK.

COVER EQUIPPED WITH 212°F., FUSIBLE SAFETY LINK.

MAY BE USED WITH HOT OR COLD SOLUTIONS (AVAILABLE WITH ELECTRIC HEATING ELEMENT).

140 UP AND DOWN MOTIONS PER MINUTE SHEAR DIRT OFF, CUT CLEANING TIME.

HANDLES UP TO 125 LBS. OF PARTS.



WRITE TODAY

for file folder including complete case histories on the Miji-Lif's phenomenal benefits!

magnus

CHEMICAL COMPANY INC

208 South Avenue, Garwood, N. J.

Please send Miji-Lif file folder.

Name _____

Company _____

Position _____

Address _____

City _____ State _____

Approximately

$300.00

(OPTIONAL ACCESSORIES ADDITIONAL).

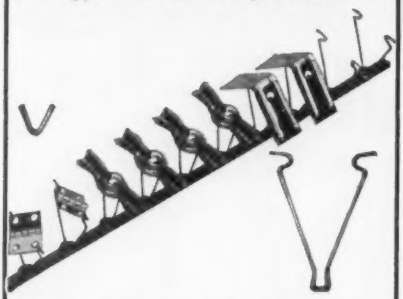
A WORLD-WIDE ORGANIZATION SPECIALIZING IN THE CLEANING AND PROTECTION OF ALL SURFACES.

For more data circle 406 on Postpaid Card

VACUUM METALLIZING

We Manufacture

Racks, Spring Wire Forms, Staples and Other Accessories for the Vacuum Metallizing Trade. Shipped from Stock or Special Order.



Write for Information and Samples

D & W TOOL & FINDINGS, INC.

52 SALEM ST • PROVIDENCE 7, R. I.

STUART 1-4554

For more data circle 428 on Postpaid Card

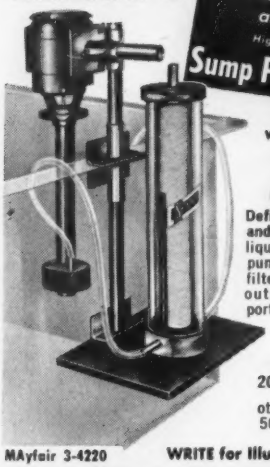
NEW!

Sethco all plastic High Temp. Epoxy **Sump Filter Pump**

with detachable

FILTER CHAMBER

Defies chemical attack and heat. No loss of liquid, self-priming pump is in the tank—filter chamber on the outside. Compact, portable, economical.



Model UAL-20 200-300 Gals./Hr.

other models from 50-1500 Gals./Hr.

MAyfair 3-4220 **WRITE for Illustrated Folder**

Sethco Mfg. Co.

2292 Babylon Tpk., Merrick, N. Y.

For more data circle 407 on Postpaid Card

Coming Up

Watch for these useful articles in coming issues of PRODUCTS FINISHING, the leading publication in the finishing field:

Nickel Bath with Good Tolerance for Impurities

This bright nickel runs continuously for long periods without being adversely affected by organic and inorganic impurities . . .

What Precision Barrel Finishing Can Do

Improved methods and materials combine to make barrel finishing a scientifically controlled, cost-cutting method . . .

Techniques for Coloring Anodized Aluminum (Part II)

A continuation of the article that begins on page 24 of this issue. A comprehensive discussion of coloring and sealing methods . . .

Can Power Brushing Help You in Finishing?

How to choose and use brushes and the machines that drive them. Tables and illustrations that aid in correcting difficulties . . .

Non-Tarnish Gold Coatings

Bronzeless gold coatings developed by Bee Chemical Co., Logo Div., are non-tarnishing. They can be used on home appliances, radio and TV sets, lighting fixtures, vending machines, and on many other products.

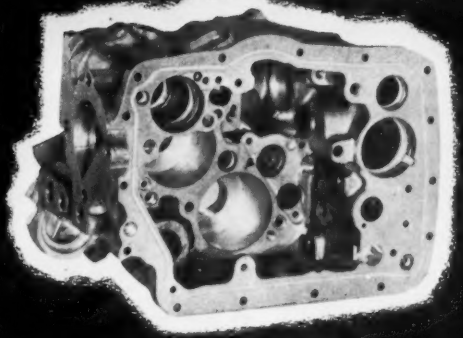
The bronzeless golds are available in standard and matched metallic shades. They are supplied ready mixed. High baking temperatures can be used without apparent color change.

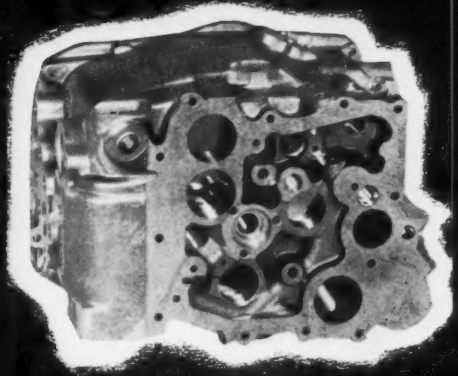
The coatings are said to offer good protection against perspiration, hu-

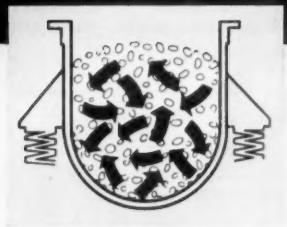
(continued)

For more data on advertisement on opposite page, circle 408 on Postpaid Card

CALL ON **ROTO-FINISH RANSOHOFF** FOR *Finishing Results* LIKE THIS . . .







CONSTANT OVERALL ABRASIVE ACTION—The Vibratron work zone extends throughout the abrasive mass. Every surface is subject to constant vibrating abrasive action.

NO MORE MANUAL HANDLING of parts and media. A built-in removable separator does the job. There's no need for an extra separator.

COMPLEX ALUMINUM CASTINGS DEBURRED 2 at a time . . . in 15 minutes . . . . . the **VIBRATRON** way!

Woodward Governor Co., Rockford, Ill., long a leading manufacturer of all types of governors for prime movers, manufacture such highly precise equipment as jet engine fuel control systems. Precise finish and dimensional tolerances are a must! The fuel control shown above was previously hand deburred and then tumbled in a multiple compartment machine for 1 hour. Now . . . these cases are processed *2 at a time in 15 minutes* in the Vibratron. No hand operation is required and the finish is more uniform.

IF YOU NEED HELP ON A FINISHING PROBLEM, *Write or Phone today* FOR FULL PARTICULARS. IT WILL PAY YOU TO GET THE FACTS ON VIBRATRON PROCESSING

ROTO FINISH

ROTO-FINISH / RANSOHOFF

3704 Milham Road, Kalamazoo, Michigan — Phone: FI reside 3-5578

FOREIGN REPRESENTATIVES: ARGENTINA—Taller—Buenos Aires ● AUSTRALIA—A. Flavell Ltd.—Cheltenham ● CANADA—Canadian Hanson & Van Winkle Co., Ltd.—Toronto ● ENGLAND—Roto-Finish Ltd.—Hemel Hempstead ● FRANCE—Societe Roto-Finish—Paris ● GERMANY, AUSTRIA, NORWAY, SWEDEN, SWITZERLAND—Metallgesellschaft A. G.—Frankfurt, a. M.—Germany ● HOLLAND, BELGIUM, LUXEMBURG—N. V. Roto Finish Maatschappij—Delft, Holland ● ITALY—Societa Roto-Finish a R. L.—Milan ● MEXICO—Enthone de Mexico, S.A. Prol. Pina 669, Mexico 15, D. F. ● SPAIN—Instituto Electroquimico, S. A.—Barcelona

midity and salt spray, rub off and flaking, without the use of protective lacquer overcoats.

Manufacturer: Bee Chemical Co., 12933 S. Stony Island Ave., Chicago 33, Illinois.

For more data circle **38** on Reader Service Card

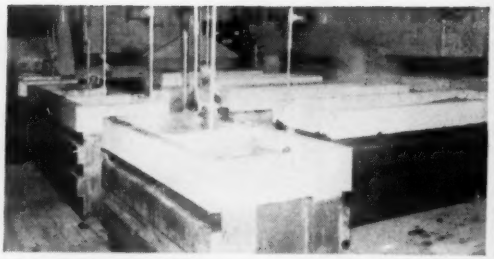
★ ★ ★

Plastic-Lined Tanks

The Myco Company recently introduced a line of plastic tanks suitable for holding plating and cleaning solutions.

Myco tanks consist of a built-up laminated, seamless tank liner of fiberglass and plastic resin formed and set under pressure and heat. The liner is bonded to a tank form made of reinforced wood or steel.

These plastic liners are said to provide a high degree of electrical and thermal insulation. Under normal operating temperatures of up to 240 deg. F., they are form-stable. The plastic is unaffected by the usual caustic and acid solutions.



Myco Plastic-Lined Tanks: acids and alkalies

Manufacturer: Myco Company, Belvidere, Illinois.

For more data circle **39** on Reader Service Card

★ ★ ★

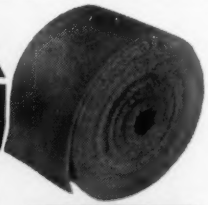
Belt Conveyors

"Series L" Belt Conveyors have been developed by The E. W. Buschman Co. for inclined or horizontal operation. Equipped with non-slip

(continued)

Bond® TACK CLOTH

PACKED IN ROLLS OR IN BULK
JUST THE WAY YOU WANT IT!



Stays Soft and Tacky — A SPECK-FREE FINISH EVERY TIME — Now available in white or gold — in Four Different Types of Cloth.

There's a big difference in TACK-CLOTHS—that's why BOND processes four different meshes of cloth with several types of formulations to give you the cloth that best "fits" your special needs. You can get BOND TACK CLOTH packed just the way that suits you best, too—in 150 yard Rolls of 36" wide cloth or in handy Cartons.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up.

All BOND TACK CLOTH is Spontaneous Combustion Proof, Lint-Free and Wax-Free. Gives a sparkling speck-free finish every time. Clean and Sanitary. No waste. Choice of Standard, Extra Tacky or Less Tacky.

TRY THEM AND COMPARE RESULTS. Samples gladly sent upon request.
A WARRANTY OF SATISFACTION IN EVERY CARTON.

IN ROLLS

Cut off any size piece as needed.

IN BULK

Size is 18" x 36"—folded to 4½" x 18" or 9" x 18" for ease of handling. Cut and folded—ready to use. Also Individually Packed in Glassine Envelopes —144 to the carton—

Bond® CHEMICAL PRODUCTS CO. 2639 N. CLYBOURN AVE. CHICAGO 14 • ILLINOIS

"The Tacky Wiper Specialist"

For more data circle 409 on Postpaid Card

The "Plus" of General Plate RHODIUM PLATING SOLUTIONS Customer Service

CUSTOMER SERVICE IN THESE AREAS:

- Analytical service for electroplating bath control
- Testing — results furnished promptly
- Competent consultant staff and comprehensive laboratory facilities
- Complete refinery to reclaim contaminated solutions

General Plate Rhodium Plating Solutions are produced under strict laboratory control assuring the highest quality and purity of product. Quantities from 5 grams up of both sulphate and phosphate type solutions are supplied from stock in the new unbreakable, transparent containers.

General Plate Solutions from Metals & Controls have been described by long-time platers of jewelry and decorative items as producing the most brilliant finish they've ever experienced. For applications requiring protection against corrosion and tarnish, and for uses where the mechanical properties and adherence to the base metal are of primary importance, General Plate Solutions give unexcelled results . . . and they cost no more.

If you're looking for Rhodium Plating Solutions *and service* from your supplier, look to Metals & Controls. Technical assistance is yours for the asking . . . no obligation, of course.

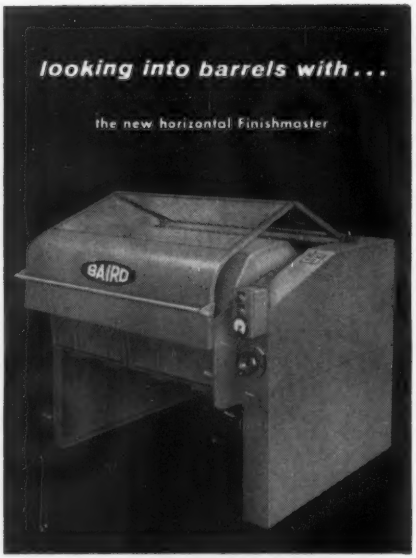
Bulletins PLA-4 and PLA-11 give complete information.

GENERAL PLATE PRODUCTS

TEXAS INSTRUMENTS
INCORPORATED
METALS & CONTROLS DIVISION
3402 FOREST STREET • ATTLEBORO, MASS.

General Plate Products: Clad Metals • Electrical Contacts • Truflex® Thermostat Metal • Platinum Metals • Reactor Metals • Radio Tube & Transistor Metals

For more data circle 410 on Postpaid Card



. . . BAIRD

And there's a lot to look at! Who else but Baird can supply almost every conceivable barrel finishing equipment need?

COMPLETE BARREL FINISHING UNITS

The famous Poliaction series, Hydratilt and Electratilt . . . ball burnishers . . . obliques . . . Multipacts for super high production output . . . steam and electrically heated machines . . . and more!

REPLACEMENT BARRELS

Polygonals in wood . . . cast barrels of iron, brass, monel or Everdur . . . sheet metal barrels, all-round or polygonals with angle or round-corner bottoms . . . bottle shapes.

PROBLEM-SOLVING TEST SERVICE

Send samples of your parts along with specifications and a small quantity of finished, acceptable parts. We will give you data on recommended barrels, media, speeds, etc. No charge, of course.

Write today for Catalog No. 50 . . . 20 fully illustrated pages in color on Baird Barrel Finishing and Tumbling equipment.

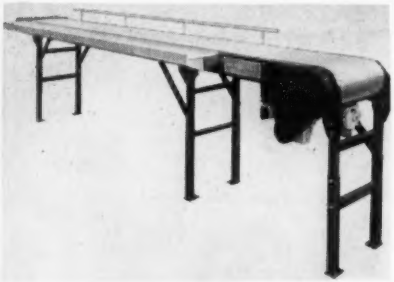
BAIRD **THE BAIRD MACHINE CO.**
Barrel Finishing Equipment Div.
600 Stratford Ave., Stratford, Conn.

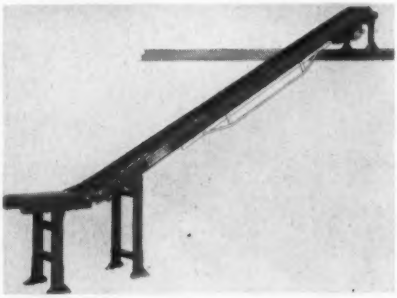
For more data circle 411 on Postpaid Card

belting, the conveyors are useful for movement of goods from one level to another or for use as a booster in a gravity conveyor line. With smooth belting, the units can be used for assembly line or processing table use.

Available in 12, 16, 20 and 24-inch belt widths, the conveyors are furnished in 2½-foot increments.

"L" series belt components include



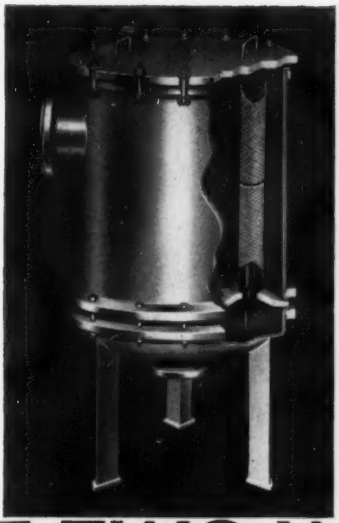


Buschman Series "L" Belt Conveyor (above) as a booster (below) for an assembly line

compact chain drive for 50-f.p.m. belt speed (1/3 to 1 h.p. motor); safety-release roller; straight or noseover delivery; box-frame intermediate sections; gravity-wheel feeder; power feeder; adjustable floor stands; truss rail for long span; adjustable continuous guard rail; and connection for Quick-Eez wheel or roller sections.

Manufacturer: The E. W. Buschman Company, Clifton and Spring Grove Aves., Cincinnati 32, Ohio.

For more data circle **40** on Reader Service Card



SAVE TWO WAYS

WITH *Fulflo* PLATING FILTER

Now . . . improve plating quality and reduce costly rejects with a Fulflo Filter that also saves you money through easy maintenance. Here's how:

1. *Save in Servicing:* New swing-bolt cover simplifies servicing — just loosen the bolts, swing them out of the way, and lift the cover. You then change the patented Honeycomb Filter Tubes in minutes!

2. *Save in Cleaning:* New bottom outlet speeds up cleaning — with the simple addition of a "T" connection and drain valve.

The new Fulflo Filter for plating provides *complete* tank turnover up to 3 times per hour for capacities up to 18,000 gallons per hour. Write for new folder to Department PF.

Filter out high costs with CFC Filters

CFC

COMMERCIAL FILTERS CORPORATION

Fulflo Honan-Crane Delpark Michiana

MELROSE 76, MASSACHUSETTS

Plants in Melrose, Massachusetts and Lebanon, Indiana

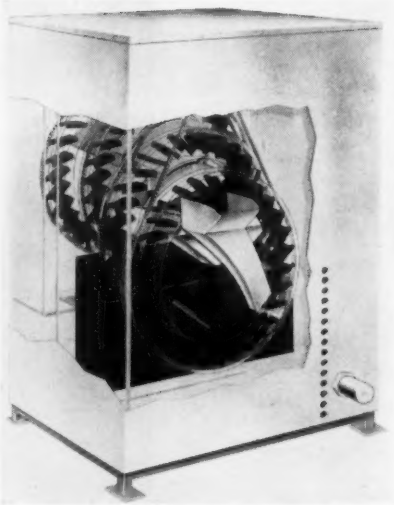
For more data circle 412 on Postpaid Card

Automatic Cleaning Machine

Metalclean Equipment Co. has introduced a machine called AutoSonex. It ultrasonically cleans machined and sheet metal parts as fast as they come off automatic fabricators.

Parts enter the AutoSonex directly from automatic grinders, screw machines, blanking presses and other metal-parts-fabricating devices, as well as from tote boxes, via vibratory hopper feed. The machine will keep up with virtually all automatics, delivering clean and dry parts.

Patent-pending design of the new AutoSonex features a series of four rotating wheels with evenly spaced cubicles to hold the metal parts. As the parts move automatically through the series of wheels, they are first immersed in an ultrasonically activated degreasing solution, rinsed, then drained, and finally passed through an isolated solvent-drying chamber before being discharged.



Cutaway: The AutoSonex Cleaning Machine

Manufacturer: Metalclean Equipment Company, P. O. Box 177, Bala Cynwyd, Pa.

For more data circle **41** on Reader Service Card

★ ★ ★

Dipping Baskets

Metropolitan Wire Goods Corporation has introduced a line of dipping baskets for handling small parts in plating, degreasing and other industrial processes. Small parts baskets for overhead conveyor use are available with either large or small mesh, or in expanded metal.

Wire Basket

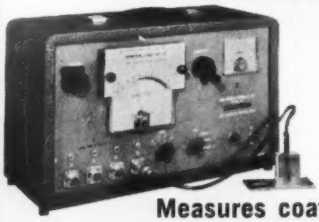
Manufacturer: Metropolitan Wire Goods Corporation, N. Washington St. and George Ave., Wilkes-Barre, Pa.

For more data circle **42** on Reader Service Card

The Latest

DERMITRON

NON-DESTRUCTIVE THICKNESS TESTER!



Measures coatings rapidly and accurately.

Instantly measures the thickness of metallic and non-metallic coatings and films.

Write for complete information.

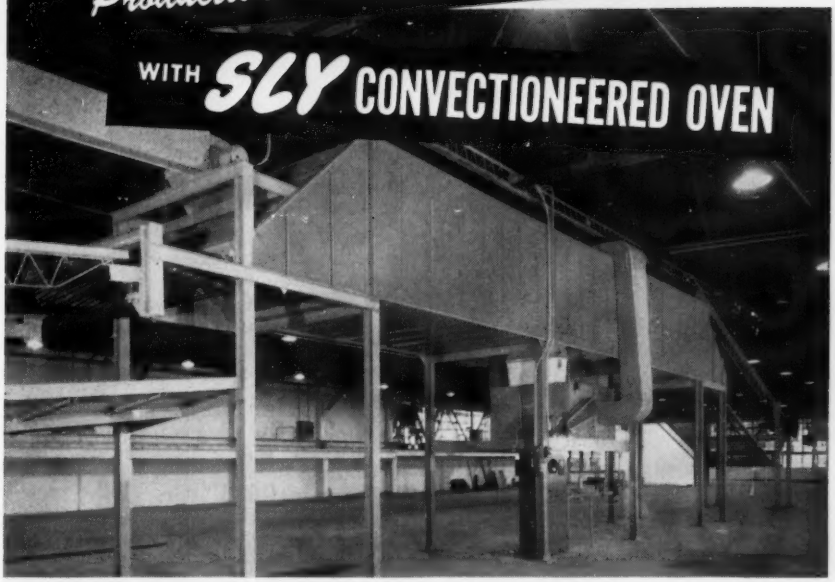
UNIT PROCESS ASSEMBLIES, INC. UPA

61 East Fourth Street • New York 3, N. Y.

For more data circle 413 on Postpaid Card

Production and Quality Up!

WITH **SLY** CONVECTIONEERED OVEN



With an increase in business, the Interior Steel Equipment Co. has augmented their paint baking facilities. In doing this they have achieved economies in handling of work while maintaining and even enhancing the quality of their products.

They installed a Sly Convectioneered Oven, 45′ long, 9′6″ wide, 6′9″ high with semi "A" type sheet metal hoods at the exit and entrance ends to form an efficient heat seal. Beneath the oven is a self-contained 2,500,000 BTU per hour direct gas-fired heating unit.

As aids in achieving excellent finishes on the products are: (1) efficient air distribution over the work (2) temperature uniformity in the baking zone (3) correct exhaust conditions to maintain proper oven atmosphere, and (4) a low overall temperature gradient between supply and recirculation temperatures.

This installation is typical of the careful engineering that goes with all Sly Industrial Ovens. *May we discuss your requirements with you?*

Designers and Manufacturers of: Dust Control Systems, Blast Cleaning Equipment, Tumbling Mills, Industrial Ovens.

SINCE 1874 SLY

THE W. W. SLY MANUFACTURING CO.

4784 TRAIN AVENUE • CLEVELAND 1, OHIO

OFFICES IN PRINCIPAL CITIES

OVERSEAS LICENSEE: ANDREW AIR CONDITIONING LTD., LONDON S.W. 1, ENGLAND

For more data circle 414 on Postpaid Card

Electric Furnace for Applying Electroluminescent Coatings

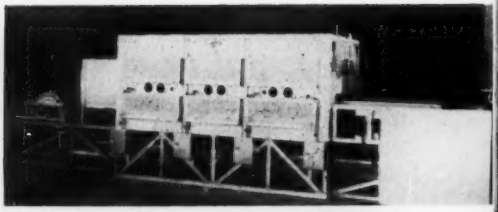
An electric furnace developed by Pereny Equipment Company is designed for use in firing the successive coatings required in applying electroluminescent coatings.

Heating characteristics of this furnace are such that the coatings can be applied on a volume basis over metal or glass.

Sensitive power controls for each of the three zones in the furnace assure that the even heat that is imperative in the process will be maintained throughout the furnace.

The unit is designed so that contaminants are kept away from the products being fired. The continuous-mesh belt is scale-free, high-temperature alloy steel. It is driven by a variable-speed drive.

When straight-line production is essential, a number of these furnaces are used, separated by the number of porcelain enamel spray booths needed to apply the successive coatings.



Pereny Electric Furnace: developed especially for firing electroluminescent coatings

Manufacturer: The Pereny Equipment Co., 893 Chambers Rd., Columbus 12, Ohio.

For more data circle **43** on Reader Service Card

★ ★ ★

Goblet Buff

A goblet buff for metal finishing announced by Schlegel Manufacturing Company is made of springy, dense wool fibers mounted on a solid hemispheric core (4 to 8 inches in diameter). The unit is known as the Schlegel Ray Buff Style 154.

Goblet Buff

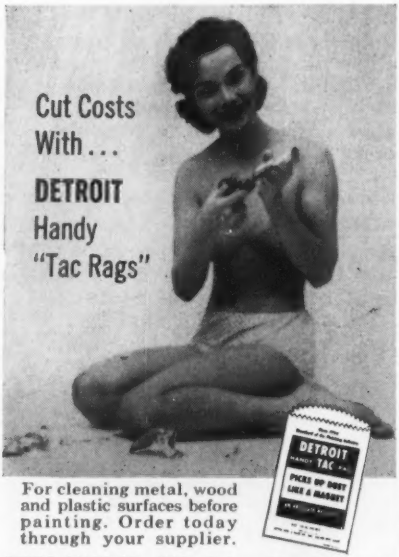
The advantages, according to Schlegel, are toughness and endurance combined with gentle surfacing action.

The Ray-Buf goblet adapts evenly to moderately irregular surfaces and it is recommended for finishing swaged or curved surfaces.

The Ray-Buf goblet uses liquid or solid polishing compounds, and does not spray compound off the work surface, the manufacturer reports.

Manufacturer: Schlegel Manufacturing Co., Dept. G-B, 1555 Jefferson Rd., Rochester 23, N. Y.

For more data circle **44** on Reader Service Card



For cleaning metal, wood and plastic surfaces before painting. Order today through your supplier.

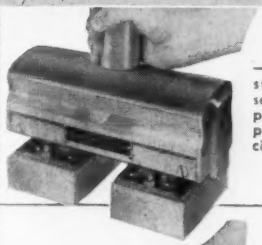
DETRO SALES CO., INC., *Culver City, California*
Standard of the Finishing Industry Since 1934
For more data circle 415 on Postpaid Card

Portable air and electric

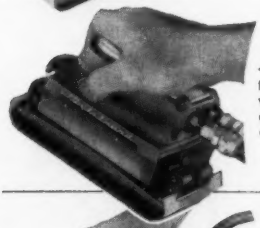
Sanders

for production and maintenance work

Model OS-800
— lighest weight orbital air sander on the market, at only 3 lb., packs the power and speed needed for production jobs.



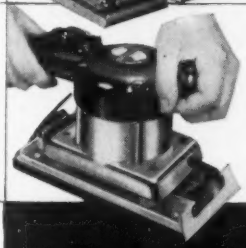
Model 600
— heavy-duty, straight-line air sander for sanding, pumice rubbing, or polishing, 1100 oscillations per minute.



Model OS-700
— single-pad orbital air sander, weighing 5 lb., operates over 6000 cycles per minute.

Model 4000
— straight-line, two-pad air sander with longer, slower stroke, 2100 oscillations per minute, 9 lbs.

Model 1000
— straight-line air sander with big abrasive area, operates at 2500 oscillations per minute, palm lever control, 7½ lb.



Model OE-900
— electric — heavy duty, high torque, constant speed. Not damaged by overload. No belts, gears or brushes.

Model SP-101
— straight-line, single-pad air sander, 3000 oscillations per minute, 5 lbs.

ASK FOR BULLETINS...
Specify models in which you are interested.

All air sanders suitable for wet or dry sanding; electric sander for dry work only.

SUNDSTRAND

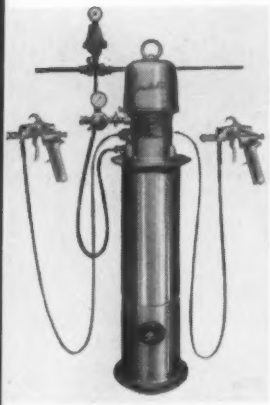
SUNDSTRAND SANDERS

SUNDSTRAND MACHINE TOOL • Belvidere, Illinois
Division of SUNDSTRAND CORPORATION

For more data circle 416 on Postpaid Card

Airless Spray for Circulating Systems

An airless spraying unit that connects to existing circulating paint systems to permit central paint mixing and viscosity control has been developed by Gray Company, Incorporated.



Airless Spray for Circulating Systems

The Standpipe Hydra - Spray eliminates virtually all overspray and bounce-back at remote spray areas, Gray reports. It provides uniform coverage of rough or porous surfaces and maintains high-speed application.

Paint is kept circulating and drawn into Hydra-Spray as it is used. Sealed standpipe allows pumping assembly to operate immersed in solvent.

Manufacturer: Gray Company, Inc., 1037 Sibley St., N.E., Minneapolis 13, Minnesota.

For more data circle **45** on Reader Service Card

★ ★ ★

Heat Exchangers

Two heat exchangers, utilizing Heil Process Equipment Corporation's "Nocordal" impervious graphite tubes 15 feet long will keep 3,100 gallons of

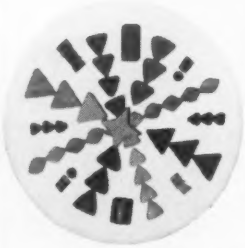
(continued)

Coming Soon!

1960 PRODUCTS FINISHING DIRECTORY

FORTUNE

BARREL FINISHING MEDIA FOR *ANY* TUMBLING NEED!



No jamming, or "rolling over" action.

Special shapes prevent jamming and rapid deburring saves costs.

Write for complete information.

FORTUNE INDUSTRIES, INC.

11770 DEXTER RD. CHELSEA, MICH.

Chelsea Phone—GR 9-3621

For more data circle 417 on Postpaid Card

FUNCTIONAL FINISHES!!

If you require your coatings to accomplish some specific task — something beyond mere ornamental appearance or average longevity—

Try Us!

We make ACRYLIC, ALKYD, CELLULOSIC and VINYLOID coatings for a very wide range of specialized industrial applications.

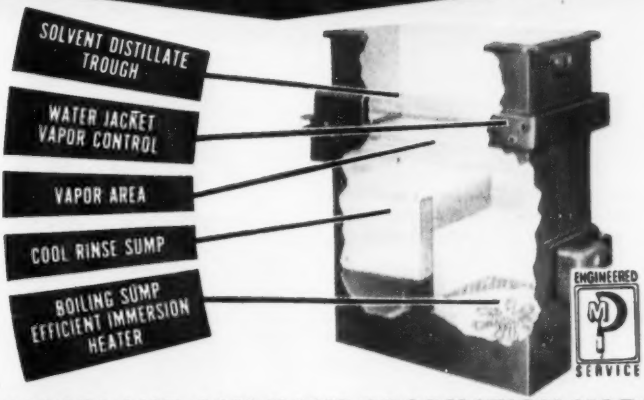
The Varnish Products Co.

5204 Harvard Avenue

Cleveland, Ohio

For more data circle 437 on Postpaid Card

this COMPACT, VERSATILE DEGREASER proves ideal for efficient, economical production in smaller plants or departments



NOW ANY PLANT CAN HAVE PRODUCTION VAPOR DEGREASING FOR LESS THAN $400.00

This vapor degreasing economy may be just what you're looking for. With such a low original investment it is possible for every plant to have vapor degreasing—the *modern* metal cleaning method.

The 100 CS is a *complete* degreaser. You get cool and hot rinse, along with vapor degreasing. In addition, the 100 CS also operates as a solvent recovery still at seven gallons per hour. (This rate is based on a 30% contamination of solvent).

The Phillips 100 CS operates economically on either a *continuous or intermittent basis, handling many production or maintenance jobs quickly and inexpensively.* Check into this low cost unit today.

SEND FOR COMPLETE TECHNICAL DATA

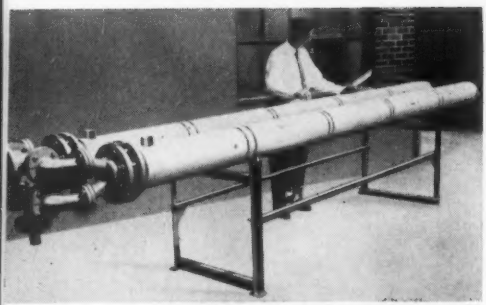
All essential information on 100 CS specifications and electrical characteristics.

ASK FOR DETAILS ON OUR NEW LEASE-PLAN FOR VAPOR DEGREASERS

Phillips *MANUFACTURING COMPANY*
3457 West Touhy Avenue
Chicago 45, Illinois

STANDARD and HEAVY DUTY ELECTRIC, STEAM, and GAS, VAPOR DEGREASERS
POWER AND SURGE WASHERS • SPECIAL CLEANING EQUIPMENT

For more data circle 418 on Postpaid Card



Heil Impervious Graphite Heat Exchanger: Keeps 3100 gallons of sulfuric acid anodizing solutions at 70 deg. F., using water at 40 deg. F.

sulfuric acid anodizing solution at 70 deg. F., using cooling water at 40 deg. F. Total capacity, 290,000 Btu. per hour.

The "Nocordal" graphite tubes have excellent heat transfer qualities; are inert to corrosive attack; and relatively free from maintenance.

These exchangers can be used for heating or cooling many corrosive solutions, including acids or mixed acids, such as hydrochloric, sulfuric, hydrofluoric, nitric, phosphoric, and many others.

Manufacturer: Heil Process Equipment Corporation, 12901 Elmwood Ave., Cleveland 11, Ohio.

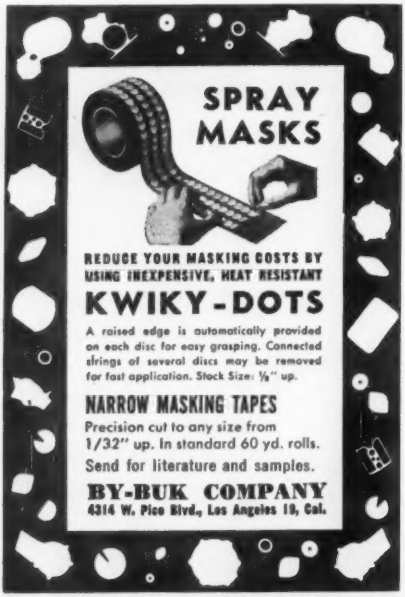
For more data circle **46** on Reader Service Card

★ ★ ★

Vibrating Barrel Finisher

A smaller version of the Vibraslide, a barrel finishing machine that rotates and vibrates at the same time, has been introduced by Metal Finish, Inc. Capacity of the new unit, the Vibraslide 5, is five cubic feet—one-fourth the capacity of the Vibraslide 20.

Vibrators and vibrating motors on both models are identical. But since


SPRAY MASKS
REDUCE YOUR MASKING COSTS BY USING INEXPENSIVE, HEAT RESISTANT
KWIKY-DOTS
A raised edge is automatically provided on each disc for easy grasping. Connected strings of several discs may be removed for fast application. Stock Size: ⅛" up.
NARROW MASKING TAPES
Precision cut to any size from 1/32" up. In standard 60 yd. rolls.
Send for literature and samples.
BY-BUK COMPANY
4314 W. Pico Blvd., Los Angeles 19, Cal.

For more data circle 419 on Postpaid Card

TRUE BRITE BRASS SOLUTION

A foolproof solution which has been in use for over 6 years in light and heavy production.

- **Ready To Use—Just Add Water**
- **No Variance in Color**
- **Trouble-Free—Little Supervision Needed**
- **Low Cost—Additions only once a day**

Available in a variety of colors. Will match your sample.

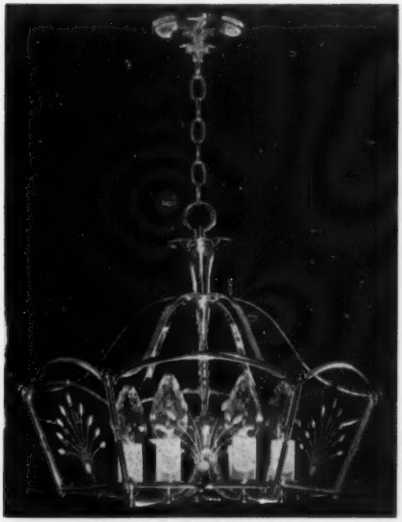
Write for technical bulletin and prices.

TRUE BRITE CHEMICAL PRODUCTS CO.
Box 31, Oakville, Conn.

For more data circle 426 on Postpaid Card

You Protect Your Reputation When You Protect and Beautify Your Product With

NIKOLAS



Fixture Illustration Courtesy H. A. Framburg & Co.

QUALITY FINISHES

The Choice of Leading Finishers and Manufacturers

SINCE 1890

With Nikolas Industrial Finishes, you can be assured of Quality Products with Guaranteed Uniformity. High solids, Low viscosity produce additional coverage that can actually show savings compared to finishes selling for 50% less. Why jeopardize your reputation with inferior finishes when the finest cost no more?

CLEAR METAL & WOOD LACQUERS • LACQUER ENAMELS
SYNTHETIC COATINGS (Baked or Air Dry—Clear Transparent Colors or Enamels)
NOVELTY FINISHES

For Information, Samples and Recommendations, Write, Wire or Call!

NIKOLAS

SINCE 1890

G. J. NIKOLAS & CO., Inc.

2880 WASHINGTON BLVD., BELLWOOD, ILL.

35 GRAND ST., BROOKLYN, N. Y.

For more data circle 420 on Postpaid Card

Technicians inspect aluminum piston forging just taken from the Vibraslide 5. Draw marks and other surface imperfections on recessed inside areas are polished out in this machine.

the new unit processes only one-fourth the load, vibratory action is increased. Thus stock removal and radius-generation rates are increased and time cycles decreased.

The Vibraslide machines combine vibratory action with rotary motion, making it possible to barrel finish many surfaces—such as inside diameters—that are difficult or impossible to finish by conventional tumbling.

Manufacturer: B. W. Elliott Manufacturing Co., Inc., Binghamton, N. Y.

Distributor: Metal Finish, Inc., 410 Frelinghuysen Ave., Newark 5, N. J.

For more data circle **47** on Reader Service Card

Drum Warmer

An electrically heated drum warmer made by Harold L. Palmer Co. can be used to heat viscous liquids in drums or to keep such liquids at the proper temperature.

This unit is thermostatically controlled, fiberglass insulated, engineered to produce an even heat, without hot spots.

Suggested uses include heating such viscous fluids as tar, asphalt, chocolate, syrups, honey and so on.

Manufacturer: Harold L. Palmer

(continued)

Cut Your Degreasing Costs 50%

NEW Roll Type Cover Fits All Vapor Degreasers

BARON ECON-O-LID

- Easy to roll open or shut.
- Gives full access to work area.
- Easy to install.

For Full Information Write

BARON INDUSTRIES

241 W. Avenue 26, Los Angeles 31, Calif.

For more data circle 421 on Postpaid Card

Your Name_____ Your Title_____

Company Name_____

Company Address_____

City_____ Zone_____ State_____

Products Manufactured_____ Number of Plant Employees_____

February 1960

products finishing

Circle KEY numbers (NOT PAGE NUMBERS) for more information on items described or advertised in this issue.

1	26	51	76	101	126	151	176	201	226	301-2nd Cov.		347	372	397	422	447	472	497	522	547	572	597	622	647	672	697	722
2	27	52	77	102	127	152	177	202	227	302-3rd Cov.		348	373	398	423	448	473	498	523	548	573	598	623	648	673	698	723
3	28	53	78	103	128	153	178	203	228	303-4th Cov.		349	374	399	424	449	474	499	524	549	574	599	624	649	674	699	724
4	29	54	79	104	129	154	179	204	229	304		350	375	400	425	450	475	500	525	550	575	600	625	650	675	700	725
5	30	55	80	105	130	155	180	205	230	305	326	351	376	401	426	451	476	501	526	551	576	601	626	651	676	701	726
6	31	56	81	106	131	156	181	206	231	306	327	352	377	402	427	452	477	502	527	552	577	602	627	652	677	702	727
7	32	57	82	107	132	157	182	207	232	307	328	353	378	403	428	453	478	503	528	553	578	603	628	653	678	703	728
8	33	58	83	108	133	158	183	208	233	308	329	354	379	404	429	454	479	504	529	554	579	604	629	654	679	704	729
9	34	59	84	109	134	159	184	209	234	309	330	355	380	405	430	455	480	505	530	555	580	605	630	655	680	705	730
10	35	60	85	110	135	160	185	210	235	310	331	356	381	406	431	456	481	506	531	556	581	606	631	656	681	706	731
11	36	61	86	111	136	161	186	211	236	311	332	357	382	407	432	457	482	507	532	557	582	607	632	657	682	707	732
12	37	62	87	112	137	162	187	212	237	312	333	358	383	408	433	458	483	508	533	558	583	608	633	658	683	708	733
13	38	63	88	113	138	163	188	213	238	313	334	359	384	409	434	459	484	509	534	559	584	609	634	659	684	709	734
14	39	64	89	114	139	164	189	214	239	314	335	360	385	410	435	460	485	510	535	560	585	610	635	660	685	710	735
15	40	65	90	115	140	165	190	215	240	315	336	361	386	411	436	461	486	511	536	561	586	611	636	661	686	711	736
16	41	66	91	116	141	166	191	216	241	316	337	362	387	412	437	462	487	512	537	562	587	612	637	662	687	712	737
17	42	67	92	117	142	167	192	217	242	317	338	363	388	413	438	463	488	513	538	563	588	613	638	663	688	713	738
18	43	68	93	118	143	168	193	218	243	318	339	364	389	414	439	464	489	514	539	564	589	614	639	664	689	714	739
19	44	69	94	119	144	169	194	219	244	319	340	365	390	415	440	465	490	515	540	565	590	615	640	665	690	715	740
20	45	70	95	120	145	170	195	220	245	320	341	366	391	416	441	466	491	516	541	566	591	616	641	666	691	716	741
21	46	71	96	121	146	171	196	221	246	321	342	367	392	417	442	467	492	517	542	567	592	617	642	667	692	717	742
22	47	72	97	122	147	172	197	222	247	322	343	368	393	418	443	468	493	518	543	568	593	618	643	668	693	718	743
23	48	73	98	123	148	173	198	223	248	323	344	369	394	419	444	469	494	519	544	569	594	619	644	669	694	719	744
24	49	74	99	124	149	174	199	224	249	324	345	370	395	420	445	470	495	520	545	570	595	620	645	670	695	720	745
25	50	75	100	125	150	175	200	225	250	325	346	371	396	421	446	471	496	521	546	571	596	621	646	671	696	721	746

FIRST CLASS
PERMIT No. 1702
CINCINNATI, OHIO

BUSINESS REPLY CARD

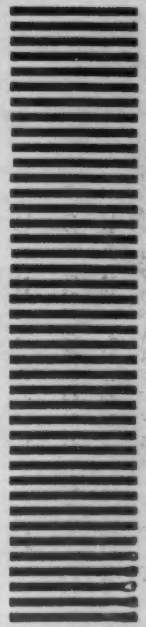
No Postage Stamp Necessary If Mailed in the United States

POSTAGE WILL BE PAID BY—

products finishing

431 MAIN ST.

CINCINNATI 2, OHIO



Drum Warmer: for drums of viscous liquids

Co., Dept. 112, 28625 Grand River Ave., Farmington, Mich.
For more data circle **48** on Reader Service Card

For information on products described or advertised, use Postpaid Reader Service Card

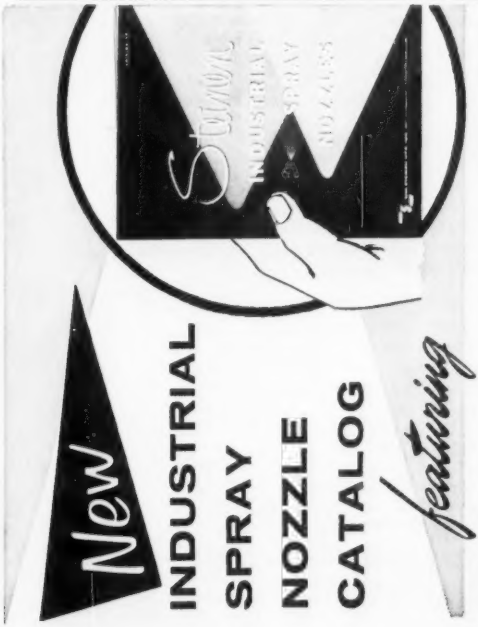
Cleaner-Phosphatizer

Heatbath Corporation has introduced Morphos, a product for simultaneously cleaning and phosphatizing iron and steel products in spray washing machines.

Morphos produces an amorphous-type iron phosphate coating which improves bonding of subsequently applied paint and also improves resistance to corrosion.

The product is a powder that is dissolved in water. Treatment time, 30 seconds to 2 minutes.

Manufacturer: Heatbath Corporation, Springfield 1, Mass.
For more data circle **49** on Reader Service Card



- EXCLUSIVE Span-Jet Nozzles . . . 160° hollow cone spray . . . 180° flat circular spray . . . capacities .75 to 10 GPM
- EXCLUSIVE Tan-Jet Nozzles . . . solid cone spray . . . capacities .50 to 10 GPM
- EXCLUSIVE Simplified, time-saving nozzle selection tables
- PLUS 32 pages of other illustrated industrial spray nozzles, flow chart, spray patterns, spray characteristics and basic engineering data.

Write for your free copy today.

STEINEN NOZZLES

WM. STEINEN MFG. CO.®
INDUSTRIAL NOZZLE DIVISION
41-39 Bruen Street, Newark, New Jersey

SERVING INDUSTRY FOR MORE THAN FIFTY YEARS

For more data circle 422 on Postpaid Card

Free Literature

Polishing, Buffing, Degreasing, Cleaning, Barrel Finishing, Plating, Anodizing, Phosphatizing, Baking, Vacuum Metallizing, Chromate Coating, Paint Finishing, Waste Treatment.

50. Metal Cleaning, Heat Processing Equipment
Photos, drawings and specifications for diversified line of degreasers and ovens. Catalog No. 10M 359. Baron Industries, 241 W. Avenue 26, Los Angeles 31, Calif.

51. Coating Small Articles
Brochure describes equipment and method for applying coatings on small electronic components at the rate of 4000 per hour. Tells how epoxy compounds can be used to form a completely light-tight seal for selenium diodes. Conforming Matrix Corporation, 356 Toledo Factories Bldg., Toledo 2, Ohio.

52. Sealing and Brightening Finishes
Fact Sheet F-2 describes Kenvert Chromate sealing and brightening finishes for non-ferrous metals—zinc, zinc die castings, cadmium, copper, and brass. Conversion Chemical Corporation, 99 E. Main St., Rockville, Conn.

53. Production Ovens
Bulletin 203-5 describes, illustrates and gives specifications for RS Series cabinet ovens. Despatch Oven Co., 619 S.E. Eighth St., Minneapolis, Minn.

54. Ultrasonic Cleaning Equipment
Technical information on ultrasonic degreasing. Photos of difficult cleaning jobs accomplished with ultrasonics. Description of special features of Detrex Soniclean degreasers. Detrex Chemical Industries, Inc., Detroit 32, Mich.

INDUSTRIAL ABRASIVE COB PRODUCTS

- **COB GRITS (Blasting)**
- **COB FLOUR (Foundry)**
- **COB MEAL (Tumbling)**

For Plastics and Metals Finishing

TI-CO INDUSTRIES, INC.

P. O. BOX 185 • TIPTON, INDIANA

Phone or Telegraph: FEderal 2-5942, Elwood, Indiana

For more data circle 423 on Postpaid Card

55. Color-Difference Meter
Description of an instrument for measuring minute color difference in either solid or liquid materials. Supplied with conversion table for Rd/L Values for the convenience of those who report the magnitude of color difference in N.B.S. Units. Gardner Laboratory, Inc., P. O. Box 5728, Bethesda 14, Md.

56. Preparing Aluminum Alloys for Electroplating
A process for preparing aluminum alloys for any type of electrodeposit is described in Technical Data Sheet No. 13, a five-page usage and instruction sheet. Alumetex Process permits all commonly electroplated metals to be deposited on aluminum. Consists of alkaline, non-etch cleaner, two acid etches, an immersion coating, final copper strike. MacDermid, Inc., Waterbury 20, Conn.

57. Airless Spray Equipment
Folder answers commonly asked questions about airless spraying, tells what process is, what pressures and temperatures are required, what the advantages are, why the paint is recirculated, why heat is used, and so on. Nordson Corp., 88 Jackson St., Amherst, Ohio.

58. Cleaning and Metal-Preparation Products
Description of several cleaners, acid-addition agents, strippers, cleaners for aluminum, spray booth compounds, drawing compounds. Northwest Chemical Co., 9310 Roselawn, Detroit 4, Mich.

59. Steel Preserver
Details on a liquid that is applied to steel as a permanent type rust preventive. For indoor or outdoor protection. Easily removed. Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

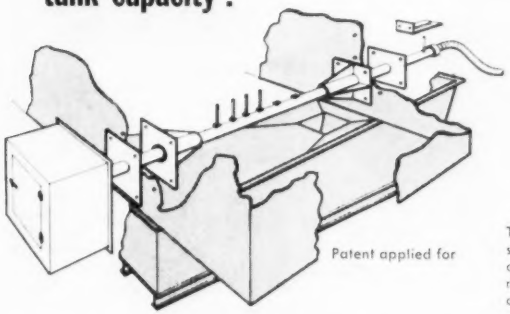
60. Vibrating Finisher
Folder on the Vibratron, a machine for deburring and improving the surface finish of metals in loose abrasives. Effectively finishes hard-to-reach shielded and internal surfaces. Roto-Finish Co., 3704 Milham Rd., Kalamazoo, Mich.

AMAZING NEW IMPROVED FLOW COATING SYSTEM!

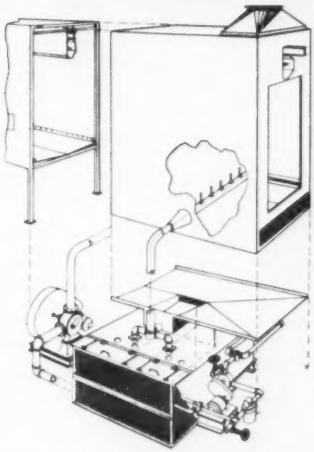
Uses 70% to 90% fewer nozzles !

Less solvent loss !

Reduces pump and storage tank capacity !



Patent applied for



This exploded view of a typical Flow Coater shows the simple application of a Koch* Oscicator to eliminate the complicated manifold, riser, nozzle, pumping, and piping system used on old type flow coaters.

* Trademark

The heart of the Koch Oscicator system is contained in the small control cabinet at the left. Paint manifold is drilled and tapped on 2" centers so that an exact nozzle pattern may be selected and the balance of the holes plugged.

The Koch Oscicator combines a two plane operation to develop a painting pattern with an absolute minimum of paint circulation and atomization. This two plane operation is adjustable to accommodate a complexity or variety of work. Newly installed systems use shorter tunnels, need less floor area. You get better quality flow coating with less paint, less solvent, smaller pumps.

IMPROVED FLOW COATING with these new features ...

smaller paint reservoir

smaller circulating pumps

less solvent loss

quick conversion

NO EXPENSIVE CHANGEOVER

No need to make an expensive plant shut down. Your flow coat enclosure remains just as it is and your maintenance crew makes the change over a week end by installing a Koch Conversion Unit. **Phone, wire, or write for expert Koch engineering assistance. No obligation.**

GEORGE KOCH SONS, INC.
Evansville 4, Indiana

For more data circle 424 on Postpaid Card

61. Printed Circuits Plating Developments
Bulletin PC-1, a 4-page technical article. Sel-Rex Corporation, Nutley 10, N. J.

62. Hot-Spray Pump
Leaflet on the Spartan pump, which is designed to serve a single or dual spray gun operation with hose line lengths up to 75 feet. Maintains temperature at the gun with full-rated hose length. Ideal for large spray booths or open areas. Particularly suited for use with abrasive-pigmented materials. Spee-Flo Co., 6614 Harrisburg, Houston 11, Texas.

63. Chemical Processing Compounds for Metalworking Industry
A guide to Turco products for the metalworking industry. Cleaners, phosphate coatings, masking compounds, water-curtain conditioners, rust preventives, rust removers, removable protective coatings, steam cleaning materials and equipment, aluminum conversion coatings, paint strippers, aluminum specialties. Turco Products, Inc., 24600 S. Main St., Wilmington, Calif.

64. Cleaner Meter
Electrically operated concentration-indicating meter for solutions used in spray washers, paint booths, phosphatizing installations, soak tanks. Wyandotte Chemicals Corp., Wyandotte, Mich.

65. Fast-Dry Alkyd
Information on Aroplaz 6006, a fast-air-dry alkyd resin which is used in paints that set up tack free in six minutes, yet retain performance advantages of alkyds. High solids content allows one-mil-thick film to be applied in just two passes of a spray gun. Archer-Daniels-Midland Co., Resin Div., 702 Investors Bldg., Minneapolis 2, Minn.

66. Metallizing Bulletins
Series of bulletins on vacuum metallizing. Consolidated Vacuum Corporation, Rochester 3, N. Y.

67. Rectifiers
Catalog LS describes silicon-diode d.c. power supplies. Dresser Electric Co., 2705 Wight St., Detroit 7, Mich.

DESTROYED BY FIRE!

Alumnus T. E. Stark, Denver Job Shop Foreman, writes: "It might interest you to know that I used the ELECTROPLATING KNOW HOW text over ten years until it was destroyed in a fire." . . Ten years of use in a job shop is sure getting your money's worth! If plating is your business, you too can get your money's worth from this unique home study course. Write **Dr. J. B. Kushner, Electroplating School, Box 2066, Evansville 14P, Indiana, TODAY.**

For more data circle 425 on Postpaid Card

68. Bright Nickel
Details on Superlume, a bright nickel bath that is said to be the most ductile at the highest levelling. Hanson-Van Winkle-Munning Co., Matawan, N. J.

69. Filtration
Booklet entitled "Modern Filtration for the Plating Industry." Industrial Filter & Pump Mfg. Co., 5904 Ogden Ave., Cicero 50, Ill.

70. Complete Finishing Systems
Complete information on integrated systems for cleaning, phosphatizing, painting and baking. Catalog A-660. R. C. Mahon Co., Detroit 34, Mich.

71. Spray Washing and Phosphatizing Equipment
Bulletin describes modular multi-stage finishing equipment, tells how these units will fit present and future requirements for complete, stage-by-stage, conveyorized finishing machinery. Detailed model selection and specification charts, plus clearly illustrated formula to aid the user in selecting the proper units to fit specific requirements. Ramco Equipment Corp., Div. of Randall Mfg. Co., 811 Edgewater Rd., New York 59, N. Y.

72. Barrel Finishing Rollers
Model RA machines are basic drive units which have rollers on which various sizes of barrels can be rotated. Rampe Manufacturing Co., 14915 Woodworth Ave., Cleveland 10, Ohio.

73. Ovens
Bulletin 127 describes various types of ovens: cabinet, rack and truck types, single- or multiple-compartment, gas, electric or steam heated, in special batch loading and conveyor types. W. S. Rockwell Co., 2900 Eliot St., Fairfield, Conn.

74. Spray Nozzle Catalog
Nozzle-selection tables, descriptions of specialized types of nozzles, exclusive designs, plus 32 pages of flow charts, spray patterns, spray characteristics, and basic engineering data. Wm. Steinen Mfg. Co., Industrial Nozzle Div., 41-39 Bruen St., Newark, N. J.

75. Vacuum Metallizing Coils
Data on precision-wound coils for vacuum metallizing. In standard shapes and sizes. Sylvania Electric Products, Inc., Chemical & Metallurgical Div., Towanda, Pa.

76. Drum Rollers
Information on the U. S. line of adjustable drum rollers, which mix, blend and tumble materials right in the original containers or in various sizes of drums. Made of conductive neoprene rubber to eliminate static electricity. Process Equipment Div., U. S. Stoneware, Akron 9, Ohio.

77. Drum-Handling Tools
Literature on a line of drum-handling tools and equipment: drum wrenches, drum upenders, carts and so on. Morse Mfg. Co., Inc., 762 W. Manlius St., East Syracuse, N. Y.

78. Cob Grit for Blasting, Tumbling
Information on cob grits that are used as tumbling media and in blast cleaning. Ti-Co Industries, Inc., P. O. Box 185, Tipton, Indiana.

79. Sealer for Anodized Aluminum
Data sheet describes Sandofix ALU, a non-smutting sealer for anodized aluminum. Sandoz Chemical Co., Inc., 61 Van Dam St., New York 13, N. Y.

80. Industrial Dust Control
A 36-page catalog (Bulletin 104) describes a complete line of Sly dust filters. W. W. Sly Manufacturing Co., 4784 Train Ave., Cleveland 1, Ohio.

81. Wet-Blast Media
Information on Exolon Fastblast, an aluminum oxide abrasive in small particle sizes that can be suspended in liquid and then thrown against the work to be finished. The Exolon Co., 943 E. Niagara St., Tonawanda, N. Y.

82. Bronzeless Golds
Bulletin M-260 describes the company's line of non-tarnishing, non-gelling, ready-mixed gold finishes. Bee Chemical Co., Logo Div., 12933 S. Stony Island Ave., Chicago 33, Ill.

83. Thickness Gage
Information on the Dyna-Empire Plategage, an instrument which determines thickness of plating or painting applied to a ferrous metal in a matter of seconds. Dyna-Empire, Inc., 1075 Stewart Ave., Garden City, N. Y.

84. Electrocleaners
Information on Cowles electrocleaning products. Cowles Chemical Co., 7016 Euclid Ave., Cleveland 3, Ohio.

85. Roller Coating Finishes
Data on vinyl coatings and enamels for roller-coat application. Cosden Paint Co., Beverly, N. J.

86. Used Polishing Equipment
Information on used buffing and polishing machines. J. Holland & Sons, Inc., 477 Keap St., Brooklyn 11, N. Y.

87. Vapor Degreasing Handbook
A 22-page booklet answers 45 questions commonly asked about vapor degreasing. Phillips Manufacturing Co., 3457 W. Touhy Ave., Chicago 45, Ill.

88. Copper Anodes
Information on "Phosphor-Brite" rolled copper anodes for acid copper plating baths. Univertical Corp., 14841 Meyers Rd., Detroit 27, Mich.

89. Vibrating Barrel Finishing Equipment
Catalog 262 describes and illustrates tumbling equipment that is equipped with a mechanism which vibrates the barrel while it is rotating. Vibration is said to speed the operation, aid in finishing recesses and internal surfaces, reduce distortion, improve descaling, deburring, radii formation, burnishing and coloring operations. Metal Finish, Inc., 410 Frelinghuysen Ave., Newark, N. J.

90. Rhodium Plating Instructions
Handy pocket-sized booklet gives complete instructions for rhodium plating, includes data on solution preparation, work preparation, temperatures and current densities, tanks, anodes, and so on. Sigmund Cohn Mfg. Co., Inc., 121 S. Columbus Ave., Mount Vernon, N. Y.

91. Clear Semi-Gloss Lacquer
Information on Agateen No. 2B semi-gloss lacquer. Agate Lacquer Mfg. Co., Inc., 11-13 43rd Rd., L. I. City, N. Y.

92. Tack Cloth
Literature on treated cloths that pick up dust and lint prior to paint finishing. Bond Chemical Products Co., 2639 N. Clybourn Ave., Chicago 14, Ill.

93. Painting Machine
Information on the new Gasway Kinetic Kurtain Coater. Gasway Corporation, 6463 N. Ravenswood Ave., Chicago 26.

94. Copper Anode
Information on the new Asarco-Max copper anode. Federated Metals Div., American Smelting & Refining Co., 120 Broadway, New York 5, N. Y.

95. Thickness Tester
Bulletin DF describes the Dermitron, an instrument for non-destructive coating thickness determination of metals on metals, metals on non-conductors, non-conductors on metals. Unit Process Assemblies, Inc., 61 E. Fourth St., New York 3, N. Y.

96. Alkaline Soak Cleaner
Technical data on Kelite Supersolv, a soak cleaner used prior to electrocleaning. This material is a non-etch, non-passivating alkaline soak cleaner for use on zinc-base die-cast parts. Kelite Corporation, 81 Industrial Rd., Berkeley Heights, N. J.

97. Etch Primer
Data on Gripalloy, an etch primer available in black and colors. Used as primer or finish coat. Tenax, Newark 5, N. J.

98. Chemical Resistant Clothing
Literature on chemical-resistant clothing shows how to select the proper type of clothing to resist various types of corrosives. Worklon, Inc., 253 W. 28th St., New York 1, N. Y.

Circle numbers on postpaid card opposite page 160 to obtain free literature

99. Centrifugal Deburring and Polishing Machine
Information on the Harperizer, a new machine for quickly producing fine, smooth finishes on parts by processing in loose abrasives without fixtures. Harper Buffing Machine Co., East Hampton, Conn.

100. Abrasive Belt Polishing Machines
Bulletin 337-T describes several models of abrasive belt grinders, buffers, polishers, tells what each machine will do, its advantages, general specifications. Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Mich.

101. Weather Testing Service
Data sheet describes company's scope of activities, facilities, special services. South Florida Test Service, 4301 N.W. Seventh St., Miami 44, Florida.

102. Spray Nozzles
Catalog No. 33-A is designed to help the user select the proper type of spray nozzle for a particular application. Complete data on each type of nozzle, including photo, construction details, capacity, recommended uses, spray characteristics, materials available. Delavan Mfg. Co., Grand Ave. and Fourth St., West Des Moines, Iowa.

103. Coatings for Steel
Information on the company's line of organic coatings for steel. These products are said to offer greater resistance to temperature, excellent color control, greater tensile strength. Reynolds Chemical Products Co., Whitmore Lake, Mich.

104. Protects Finished Parts
Folder on Neotex protective mesh, which can be used to line trays, baskets, tables, benches—any surface where highly polished or critical-tolerance parts are being worked on or are in transit. Research Products Corporation, Madison 1, Wis.

105. Soluble Precious Metals for Electroplating
Folder lists gold, rhodium, palladium, platinum, silver, and alloy precious metal plating solutions available from stock. Technic, Inc., P. O. Box 965, Providence 1, Rhode Island.

106. Brass Plating Solution
Technical bulletin on True Brite brass solution, which is available in a variety of colors. True Brite Chemical Products Co., Box 31, Oakville, Conn.

107. Barrel Plating Equipment
A 12-page bulletin on the Udylite line of barrel plating equipment describes plastic cylinders, cluster barrels, multiple-barrel units, complete barrel plating systems, storage and transfer units, dryers, final rinse units, other related equipment. Udylite Corp., Detroit 11, Mich.

108. Acrylic Coatings
Performance and application information on acrylic-based coatings. The Varnish Products Co., 5204 Harvard Ave., Cleveland, Ohio.

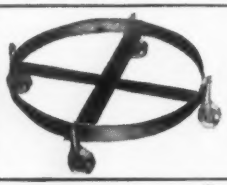
109. Baking and Drying Ovens
Bulletin 157 describes line of batch and conveyor-type baking ovens for heating up to 1,000 deg. F. Young Brothers Co., 1830 Columbus Rd., Cleveland 13, Ohio.

110. Setting Up Polishing Wheels and Belts
Form 1340, a 45-page booklet on methods of setting up polishing wheels and belts for metal finishing operations, includes detailed instructions on abrasive grains, glue and its preparation, types of polishing wheels and their fields of use, correct drying of polishing wheels, handling and storage, other related subjects. Norton Co., Worcester 6, Mass.

111. Horizontal Tumbler
Data sheet describes features of the new Baird Finishmaster, a horizontal barrel finishing machine. The Baird Machine Co., Stratford, Conn.

112. Cleaning and Finishing Machinery
A two-page bulletin describes machines, systems and processes for cleaning and finishing metal products. Cincinnati Cleaning & Finishing Machinery Co., 2008 Hageman St., Cincinnati 41, Ohio.

113. Cleaning Compound
Information on Apex 764, a moderately alkaline composition containing deflocculators and emulsifiers for removing insoluble soils from ferrous metals. Apex Alkali Products Co., Main & Rector Sts., Philadelphia 27, Pa.



MORSE DRUM DOLLY No. 13

Perfect for vertical handling of open end drums. Easily handles loads up to 700 lbs. Built of 2½" steel for long life. 24" diameter; overall height 6½". Has four 3" dia. steel swivel casters for easy rolling into small areas. Rubber wheels available.

MORSE MFG. CO., INC. $17.90 FOB
762 W. Manlius St., E. Syracuse, New York

For more data circle 427 on Postpaid Card

114. Barrel Nickel
Technical information, process details, equipment required, trouble-shooting tips for Sey-Lite bright nickel used in barrel nickel plating. Seymour Manufacturing Co., Seymour, Conn.

115. Soak Cleaner
Information on a controlled-pH, high-detergency soak cleaner for applications where space is limited for precleaning. Solventol Chemical Products, Inc., 15841 Second Blvd., Detroit 3, Mich.

116. Complete Finishing Systems
Literature on Spra-Con complete finishing systems for applying organic coatings. Data on components such as washers, ovens, flow-coat machines, conveyors, air make-up systems. The Spra-Con Co., 3600 Elston Ave., Chicago 18, Ill.

117. Spraying Wash Primer
Information on Stantite Spraying Wash Primer, a two-package rust-inhibiting primer that is said to improve the quality of any topcoat, air-dry or bake. Stanley Chemical Co., Dept. PF, 1338 Berlin St., East Berlin, Conn.

118. Spray Nozzle Catalog
Catalog No. 24 is a 48-page booklet containing complete data on various spray nozzles and accessories. Nozzles are listed in tabular form and complete information is given on pipe sizes, external dimensions, orifice diameters, capacities and spray angles. Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

119. Liquid Buffing and Coloring Compositions
Four pages on liquid buffing compounds. Detailed information on 11 special liquid buffing and coloring compositions. Frederic B. Stevens, Inc., 1800 Eighteenth St., Detroit 16, Mich.

120. Air Sanders
Data on portable air-operated sanding machines. Sundstrand Machine Tool Div. of Sundstrand Corp., 2531 Eleventh St., Belvidere, Ill.

121. Nickel Plating Salts
Information on company's line of "Quality Certified" nickel plating salts. Nuodex Products Co., Elizabeth, N. J.

122. Automatic Polishing
Information on automatic polishing and buffing machines. Packer Machine Co., Meriden, Conn.

123. Black Oxide
Bulletin H-16 tells how to produce a rust-resistant black finish that is also an excellent base for topcoats of lacquer or enamel. Park Chemical Co., 8074 Military Ave., Detroit 4, Mich.

124. Clear Protective Coating
Data sheet on Irilac No. 1000, a clear, water-soluble protective coating that provides corrosion resistance and resistance to fingerprinting and abrasion without changing the appearance of the metal. For use on bare metal, conversion coated surfaces, electroplated finishes. Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Maryland.

125. PVC Tank Lining
A six-page brochure. Amer-Plate industrial lining, a dense, flexible polyvinyl chloride sheet for lining plating, pickling and other tanks and vessels. Protects steel and concrete from strong solutions. Two types available: one for existing installations, one for new work. Amercoat Corporation, 4809 Firestone Blvd., South Gate, Calif.

126. Plating Racks
Illustrated bulletin on Thinker Boy plating racks, which are made of stock insulated parts that assemble with a leakproof seal. Belke Manufacturing Co., 947 N. Cicero Ave., Chicago 51, Ill.

127. Electropolishing Stainless Steel
Literature on baths for electropolishing stainless steel includes operating instructions for two of these baths. Electro-Glo Co., 621 S. Kolmar Ave., Chicago 24, Ill.

128. Metallizing Material
Staples made of extremely pure aluminum and prepared for use in vacuum metallizing are described in literature available from D & W Tool & Findings, Inc., 52 Salem St., Providence 7, R. I.

129. Baking and Drying Equipment
Catalog No. 560 describes and illustrates various types of baking and drying equipment. The Lanly Co., 2800 Euclid Ave., Cleveland 15, Ohio.

130. Tack Rags
Four-page folder describes advantages of Detroit Handy Tac Rags. Detro Manufacturing & Sales Co., Culver City, Calif.

131. Brass Additive
Information on an additive formulated to increase efficiency and throwing power of brass plating solutions. Jelco Finishing Equipment Corp., 153 E. 26th St., New York 10, N. Y.

132. Copper Anodes
Publication CA-10R2. Eight pages on OFHC copper anodes. Description of advantages (bagging eliminated, less undercutting of small grains, less sludge, low porosity, uniform dissolution, top anode efficiency). Amco Div., American Metal Climax, Inc., 61 Broadway, New York 6, N. Y.

133. Pressure Curtain Coater
Data File SIF-7 contains complete data on the Steinemann-Koch pressure curtain coater, which applies a uniform coating of lacquer or synthetic material on flat or moderately curved work. Patented Swiss process in which a vertical film is poured onto the work from adjustable orifices. George Koch Sons, Inc., Evansville 4, Indiana.

134. Multiple-Process-Cycle Plating Machine
Information on the Select-O-Matic automatic plating machine, which allows the operator to select any one of several plating cycles when he loads the machine, merely by turning a dial. Lasalco, Inc., 2820 LaSalle St., St. Louis 4, Mo.

135. Fume Control System
Booklet F shows typical installations of Kirk & Blum fume-control systems. Kirk & Blum Mfg. Co., 3116 Forrer St., Cincinnati 9, Ohio.

136. Compounds for Barrel Processing
"Permag Compounds for Barrel Processing" is the title of a manual that gives basic information on barrel processing compounds, specific data on deburring and roughing, coloring and burnishing, descaling, rust prevention, neutralizing, other topics. Includes methods for calculating volumes of barrels, notes from case histories. Magnuson Products Corp., 50 Court St., Brooklyn 1, N. Y.

137. Pearlescent Finishes
Information on Nacromer YNC, an additive that is used in standard organic finishes to produce a pearlescent finish. The Mearl Corporation, 41 E. 42nd St., New York 17, N. Y.

138. Temperature Control
Bulletin 1025-B describes temperature controllers that hold solutions at pre-set temperatures automatically. Sarco Co., Inc., 635 Madison Ave., New York 22, New York.

139. Filters for Compressed Air
Bulletin GEO-507. Four pages of information on various types and sizes of filters for compressed air and other gases. Includes technical information and charts on flow characteristics, physical dimensions, and metals of which the filters are made. Commercial Filters Corporation, Melrose 76, Mass.

140. Sodium Cyanide
A 12-page brochure describes physical forms of cyanide, gives storage instructions, includes data on physical properties of sodium cyanide, tells how to dispose of cyanide wastes. Electrochemicals Dept., Sodium Products Div., E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.

141. Cyanide Copper Plating Process
Data on Ro-Bright, a bright cyanide copper plating process said to produce deposits with excellent brightness in a minimum time. R. O. Hull & Co., Inc., 1304 Parsons Ct., Rocky River 16, Ohio.

142. Cold Stripper
Technical sheets describe Electro Cold Stripper, a non-flammable liquid paint remover that will strip air-dry and high-bake synthetic coatings, alkyds, epoxies, vinyls, phenolics and so on. This product is useful in removing specialized coatings such as photo resists, vacuum plated coatings, and is also used in conjunction with ultrasonic cleaning operations. Available in liquid form for dipping operations or in viscous form for brush application or flow on. Allied Finishing Specialties Co., 2643 W. Grand Ave., Chicago 12, Ill.

143. Pressure-Sensitive Tape Dispenser
Bulletin No. 525 tells about the Brady Tapematic, an electrically operated machine that will dispense masking tape, labels, pre-cut masks, automatically. W. H. Brady Co., 746 W. Glendale Ave., Milwaukee 9, Wisconsin.

144. Corrosion-Resistant Coatings
Booklet entitled "What Every Maintenance Man Should Know About Urethane Coatings" describes characteristics of these plastic coatings: resistance to corrosive chemicals and fumes; resistance to abrasion, heat, sunlight, weather. Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J.

145. Filter-Pump Selection Guide
Bulletin M-1. Eight pages. Lists many electroplating and industrial solutions and the filter pumps recommended for each. Data and facts about components and materials of construction. Illustrations and specifications for 20 representative models, ranging in capacity from 50 to 2700 g.p.h. Sethco Manufacturing Corp., 2292 Babylon Turnpike, Merrick, New York.

Telephone collect for free brochure on
OXIDIZING COPPER, SILVER, BRASS, BRONZE
with
McKeon's "Liquid Sulphur"
Processes described in detail.
Sulphur Products Co., Inc.
McKeon Bldg., 621 W. Pittsburgh St., Greensburg, Pa.
For more data circle 429 on Postpaid Card

146. Ready-Mixed Gold
Information on Sea-Lac ready-mixed gold finishes for application by spray or dip. Duralac Chemical Corp., 84 Lister Ave., Newark, N. J.

147. Paint Stripper
Technical Bulletin on Dytex No. 153 Stripper. 4 pages. Description, list of finishes removed, instructions for use. Dytex Chemical Co., 140 India St., Providence 3, R. I.

148. Metal Strippers
Enstrip Selection Chart gives complete information about solutions that will remove deposits of nickel, copper, brass, silver, zinc and cadmium plate without attacking steel basis metal. Also includes data on products for stripping nickel and copper from brass; solder, tin and lead from steel and copper-base alloys; copper, nickel and chromium from zinc-base die castings; and others. Enthone, Inc., Subsidiary of American Smelting and Refining Co., 442 Elm St., New Haven, Conn.

149. Face Mask
Information on the Flex-A-Prene face mask, which protects the wearer against overspray when spraying paint. Flexo Products, Inc., 24864 Detroit Rd., Westlake, Ohio.

150. Sisal Buffs
Descriptive literature on Zippo Sisal Buffs, which are said to be excellent as dual-purpose (polishing and buffing) wheels. Formax Mfg. Corp., Detroit 7, Mich.

151. Tumbling Media
Information on preformed tumbling media and abrasive products. Over 200 sizes and bonds available. Fortune Industries, Inc., 11770 Dexter Rd., Chelsea, Mich.

152. Electrostatic Spray Gun, Hand-Held
Six pages. "Spray Painting with the Electrostatic Hand Gun." Principles and uses of recently introduced hand-held electrostatic spray painting gun. Photos of production applications. Ransburg Electro-Coating Corp., P. O. Box 23122, Indianapolis 23, Indiana.

153. Electronic Thickness Tester
Bulletin 400 gives details on the Kocour Electronic Thickness Tester, includes "question and answer" section. Kocour Co., 4814 S. St. Louis Ave., Chicago 32, Illinois.

154. Deburring and Polishing
Information on the Spin-Finish, a machine that deburrs and polishes fixtured parts by lowering the fixtured parts into a spinning tub of loose abrasives. Grav-I-Flo Corporation, Dept. PF-11, Sturgis, Mich.

155. Zinc Plating Additive
Data on Zinc Brite, a cleansing and purifying agent for cyanide zinc plating solutions. Sulphur Products Co., Inc., 621 W. Pittsburgh St., Greensburg, Pa.

156. Heat-Resistant Finish
Sicon, a finish that withstands high temperatures, is described in a brochure which presents a complete table of properties, characteristics and application data. Midland Industrial Finishes Co., Waukegan, Ill.

157. Stripping Additive
Special bulletin on Magnus Activall, an additive said to increase efficiency and effectiveness of caustic strippers. Magnus Chemical Co., Inc., 208 South Ave., Garwood, N. J.

158. Conveyorized Finishing Systems
Information on finishing systems for painting articles that are turned out in large quantities. Industrial Ovens, Inc., 13811 Triskett Rd., Cleveland 11, Ohio.

159. Cut Anode Waste
Information on reducing waste of costly anodes by purifying plating baths with activated carbon so as to reduce rejects. Chemicals Div., Atlas Powder Co., Wilmington 99, Del.

ALL TITANIUM
UTILITY RACKS for ANODIZING
IN STOCK

STANDARDIZED ALL TITANIUM ANODIZING RACKS AND RACK COMPONENTS
TITANIUM ANODIZING CYLINDERS
TITANIUM RACK CLIPS AND ANODE HOOKS
ALL TITANIUM ANODE SCRAP SAVER BASKETS
PLATING TANK TITANIUM HEATING COILS
EXPANDED TITANIUM SHEET METAL
TITANIUM BOLTS, NUTS, STUDS, AND WASHERS
TITANIUM SHEETS, STRIPS, WIRE AND BARS

WRITE, WIRE OR PHONE FOR OUR FULLY ILLUSTRATED BROCHURE

LeVita Industries Inc.
3125 E. LARNED AVE. DETROIT 7, MICHIGAN
LO. 7-5555

For more data circle 430 on Postpaid Card

Circle numbers on postpaid card opposite page 160 to obtain free literature

160. Spray Equipment
Catalog A-53 covers equipment needed for refinishing operations in the automotive, appliance, furniture and other fields. Includes complete information on 15 different models of spray guns, compressors, air regulators, paint cups and tanks, spray booths, exhaust fans, hoses and connections, infrared drying equipment, hot spray units, respirators and underbody coating equipment. DeVilbiss Co., Toledo 1, Ohio.

161. Metal Preparation Service Plan
Details on Pennsalt's service plan, which includes aid in training personnel, installation of new equipment when needed, advice on how to save money on materials and compounds, emergency service. Metal Processing Department, Pennsalt Chemicals Corporation, Three Penn Center, Philadelphia 2, Pa.

162. Duplex Nickel
Literature on the Harshaw Perflow-Perglow Duplex nickel plating process. Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio.

163. New Paint Finish
Information on Ep-O-Spra, an organic finish that looks like special metal finishes, is durable, economical and easy to apply by spraying. Resists heat, abrasion, impact, acids. Lowe Brothers Co., Dayton 2, Ohio.

164. Pelletized Chromium
Data sheet on new pelletized SRHS chromium plating compounds. Can be shovelled or poured without dust. Metal & Thermit Corporation, Rahway, N. J.

165. Water-White Lacquer
Information on Daconite 5600 clear lacquer, a ready-to-spray lacquer that is said to have excellent paleness and color retention. James B. Day & Co., 1872 Clybourn Ave., Chicago 14, Ill.

166. Parts Washer
Bulletin 107 on the Vibra-Washer, an automatic parts washer and metal conditioning machine. Simplicity Engineering Company, Durand 25, Mich.

For more data circle 431 on Postpaid Card

167. Clear Protection
Information on 2105 Clear Lacquer for the protection of brass, silver, bronze and copper. G. J. Nikolas & Co., Inc., 2880 Washington Blvd., Bellwood, Ill.

168. Finishing Systems
Bulletin shows typical integrated complete systems for applying organic coatings. Includes description of products being coated, the process used and specifications for the system. Michigan Oven Co., 423 Brainard Ave., Detroit 1, Mich.

169. Buffs
Data sheet describes Buff Type No. 20-RD, a heavy-duty buff made of sisal twine, used for finishing stainless steel, brass and other metals. Geo. R. Churchill Co., Inc., Dept. PF, Hingham, Mass.

170. Masking Aids
"Time-Saving Masking Aids for Better Product Finishing" is the title of an illustrated brochure that describes masking discs, plugs, caps, corks, tape. Includes information on tape dispensers. By-Buk Co., 4314 W. Pico Blvd., Los Angeles 19, Calif.

171. Bronze Powders
Color card shows 33 colors of bronze-like finishes that can be produced from stock Cres-Lite bronze powders. Crescent Bronze Powder Co., 118 W. Illinois St., Chicago 10, Ill.

172. Tumbling Machines
Literature describes and illustrates various tumbling machines. H. W. Kramer Co., 120-30 Jamaica Ave., Richmond Hill 18, New York.

173. Plating Course
Information on a correspondence course in electroplating. Joseph B. Kushner Electroplating School, P. O. Box 2066, Station "D," Evansville 14P, Indiana.

174. Finishing Systems
New 4-page catalog describes machinery and systems for metal surface processing (cleaning, washing, rinsing, drying, spraying, flow and dip coating). Includes information on drum-type machines, conveyor machines and systems, combination drum and conveyor machines, and complete automatic finishing systems. Ransohoff/Roto-Finish, Hamilton, Ohio.

175. Cleaners
Bulletin B-8 describes a complete line of metal cleaners. Classified according to the metal being cleaned, it gives information on operating conditions, type of material, and so on. Apothecaries Hall Div., Hubbard-Hall Chemical Co., Waterbury 20, Conn.

176. Platinum-Group Metal Products
Eight-page brochure describes platinum-

metal products, including solid and clad platinum metals and alloys in sheet, strip, wire, foil and seamless tubing; parts, shapes and specialties; dental foil, electrical contacts, electrodes, catalysts, salts, anodes, laboratory ware, rhodium plating solutions, transistor materials. Lists physical and chemical properties of platinum. Metals & Controls Div., Texas Instruments, Inc., 3402 Forest St., Attleboro, Mass.

177. Electropolishing Solution
Technical Data Sheet 95 describes a liquid acid material used to electropolish steel and stainless steel. Called Metex Electropolish BS, this solution produces a brilliant finish on both steel and stainless steel, is also useful for deburring. MacDermid, Inc., Waterbury 20, Conn.

178. Silicon Rectifier
Data sheet on a new 1500-ampere, 2-12-volt silicon rectifier. Rapid Electric Co., 2881 Middletown Rd., New York 61, N. Y.

179. Vacuum Metallizing Service
Information on company's vacuum metallizing facilities. Equipment and know-how to handle production runs quickly and efficiently. Metaplast Process, Inc., 34-51 56th St., Woodside, L. I., New York.

180. Colors for Anodizing
Information on dyestuffs for coloring anodized aluminum. Jet blacks, many colors. Light fast. Rarely require buffering for pH adjustment. Carbic-Hoechst Corporation, 451 Washington St., New York 13, N. Y.

181. Fluidized-Bed Coating
Data sheet on the Vibro-Fluidizer, an apparatus designed for use in applying plastic coatings by the fluidized-bed process. Armstrong Products Co., Argonne Rd., Warsaw, Indiana.

182. Surface-Roughness Manual
A 12-page surface measurement reference manual classifies surface characteristics, stylus-type measuring instruments, precision reference specimens, roughness width cutoff, and includes notes on control of surface roughness. Brush Instruments Div., Clevite Corp., 37th and Perkins, Cleveland 14, Ohio.

183. Platers' Microscope
Technical data on the Unitron Platers Microscope, Model PL-MEC. Unitron Instrument Div., United Scientific Co., 204-206 Milk St., Boston 9, Mass.

184. Anodizing Dyes
Information on a complete line of anodizing dyes. Eaton Chemical and Dyestuff Co., 1490 Franklin St., Detroit 7, Mich.

185. Anodizing Racks
Information on titanium strip, bars, rods, wire, fasteners, sheets, expanded metal—components to make your own racks. American Titanium Corp., 3129 E. Larned St., Detroit 7, Mich.

186. Finishing Systems
Bulletin shows integrated systems for applying organic coatings. Shows typical installations, describes product being painted along with specifications for the system in use. Michigan Oven Co., 431 Brainard Ave., Detroit 1, Mich.

187. Automatic Polishing
Information on automatic polishing and buffing machines. Packer Machine Co., Meriden, Conn.

188. Tumbling Chips
Data sheets describe processed limestone honing chips; processed red granite tumbling chips; aluminum oxide media; cleaning and burnishing compounds. Universal Tumbling Supply Co., P. O. Box 26, Brightmoor St., Detroit 23, Michigan.

189. Titanium Racks for Anodizing
Illustrated brochure on the company's line of all-titanium anodizing racks. LeVita Industries, Inc., 3125 E. Larned St., Detroit 7, Mich.

190. Rhodium Plating Solutions
Bulletins PLA-4 and PLA-11 give complete information on General Plate Rhodium Plating Solutions. Texas Instruments, Inc., Metals & Controls Div., 3402 Forest St., Attleboro, Mass.

TUMBLING CHIPS

ALL SIZES

Processed Limestone Honing Chips
Processed Red Granite Tumbling Chips
Cleaning and Burnishing Compounds

8¢ LB.
F.O.B. DETROIT

UNIVERSAL TUMBLING SUPPLY CO.

P. O. BOX 26 • BRIGHTMOOR ST. • DETROIT, MICH.

For more data circle 432 on Postpaid Card

OPPORTUNITY SECTION

Classified Advertising

SOUTH FLORIDA TEST SERVICE, INC.

Testing—Inspection—Research—Engineers

Consultants and specialists in corrosion, weathering and sunlight testing.

4301 N. W. 7th St. • Miami 44, Florida

MANUFACTURER'S REPRESENTATIVES

wanted in Eastern and Midwestern territories who know metal cleaning and paint stripping to sell unusually effective line of specialities. These are performance proven, not just run-of-mill. Applicants must have experience and good contacts to secure quick action. **Write ESBEC Chemical Division, Box 929, Stamford, Conn.**

PLATING CHEMIST

for technical service representative in Midwest. Emphasis on industrial precious metals processes. Must know cycles, control, layout, trouble-shooting. Extensive travelling. Willing to relocate. State salary. Box No. 23, c/o Products Finishing, 431 Main St., Cincinnati 2, Ohio.

WANTED

Experienced Sprayer. Must be experienced, know all paints. Long Island City Job Shop; near all transportation. Benefits. Salary open. Write Box 26, c/o Products Finishing, 431 Main St., Cincinnati 2, Ohio.

Space on this page is available for advertising of Services, Employment, Used Machinery & Equipment, Etc.

Sold in inch units, one col. wide.
Rate: $25 per col.-inch.

PRODUCTS FINISHING,
431 Main St., Cincinnati 2, Ohio

CHEMIST

SITUATION OPEN—Chemist for Plating Laboratory in large finishing Company, Newark, New Jersey. Experience in analysis and control. Reply submitting full resume of experience to Box No. 22, c/o Products Finishing, 431 Main Street, Cincinnati 2, Ohio.

SALESMEN WANTED

Excellent opportunity with well-established manufacturer of patented buffs, compounds, coated abrasives, and metal-finishing supplies. To cover N. Y., N. J., Penna., and Del-Mar-Va. Must have sales experience in same or related fields. Salary plus commissions and monthly sales bonus. Send complete information for confidential consideration to Box 24, c/o Products Finishing, 431 Main Street, Cincinnati 2, Ohio.

WANTED

Assistant Anodizing Foreman for Long Island City Job Shop. Must be experienced and know all colors and chromic acid. Benefits, near all transportation. Salary open. Write Box 25, c/o Products Finishing, 431 Main St., Cincinnati 2, Ohio.

"IF YOU ARE HAPPY in you present job but have always had an abnormal yen to be in business for yourself; If you are young, energetic, ambitious and have conviction in your abilities; If you are a practical chemist with sales management talent; If you are anxious to join a small growing company where the demands on your time, imagination and capacity will be outrageous, then we should get together." Send resume and letter to I-SIS Chemicals, Inc., Springdale, Conn.

DON'T BUY ANY ONE OF THESE ITEMS

UNTIL YOU GET OUR LOW PRICES! WE CARRY A LARGE STOCK OF REBUILT USED FINISHING EQUIPMENT INCLUDING HAND OPERATED AND AUTOMATIC UNITS.

SPRAY BOOTHS	CONVEYORS	PHOSPHATIZING UNITS
MIXING TANKS	FANS	CENTRIFUGAL ENAMELERS
PAINT HEATERS	OVENS	DEGREASERS
PRESSURE TANKS	LIGHTS	PUMPS, MOTORS, ETC.

GENERAL EQUIPMENT & TRADING CO. • 2621 W. GRAND AVE., CHICAGO 12, ILL.

news of the finishing industry

company news
new positions
new plants
meetings

NEW PLANTS

Pennsalt To Build Technical Center

Pennsalt Chemicals Corporation has chosen a 50-acre site in the King of Prussia Industrial Park for construction of a technical center which will ultimately represent an investment of $6,000,000. This industrial park is at the Valley Forge Interchange of the Pennsylvania Turnpike.

In announcing the new purchase, Pennsalt President William P. Drake said that it will permit an orderly expansion of Pennsalt's facilities for research, development and technical service.

Plans call for a campus-type arrangement featuring a central mall. The first building in the complex will be a two-story laboratory occupying approximately 21,000 square feet. This will be devoted to product development and technical service on Pennsalt's proprietary chemicals for metal working and other industries.

New Plant for Aero-Test Equipment Co.

Aero-Test Equipment Company, Inc., Dallas, Texas specialized engineering and manufacturing firm recently moved into a new 50,000 square foot plant at 8401 Chancellor Row.

Artist's conception of Pennsalt Chemicals' planned six-million-dollar Technical Center.

Aero-Test Equipment Company's New 50,000-Square-Foot Plant in Dallas, Texas

Early last year the firm formed a new division, Perfecto-Peen, to manufacture machines and equipment for a new metal peening and finishing process. Machines use specially-treated tiny glass beads ranging from grain size of sugar to a fine powder for metal stress relieving, cleaning and finishing.

American Brass to Build New Research Center

The American Brass Company, Waterbury, Conn., will build a $1,500,000 research center in Waterbury, Conn. Ground will be broken in early summer, and completion is scheduled for 1961.

The center will include metallurgical, corrosion and chemical laboratories, and equipment for experimental production of new products as well as offices for the company's central technical staff.

The company will continue to expand its staff of research scientists and technicians.

The American Brass Company is a 100 per cent owned subsidiary of The Anaconda Company.

New Ultrasonic Company

Paul M. Platzman, New York industrialist and authority in the field of ultrasonics has announced the formation of Ultrasonic Industries, Inc. Headquarters for the new company is 141 Albertson Ave., Albertson, L. I. The company plans to move to a building in Plainview Industrial Park during 1960. It will produce ultrasonic cleaning equipment.

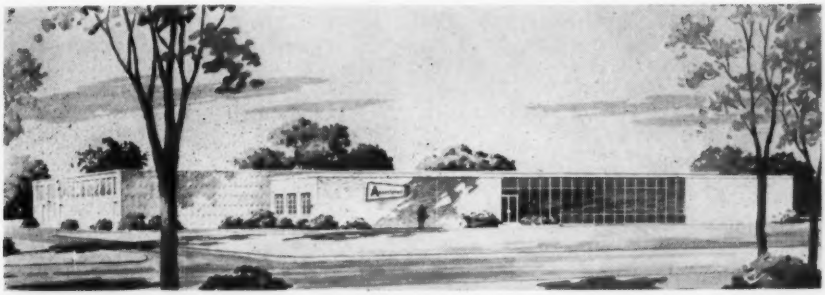
Associated with Mr. Platzman in the new company are Herbert A. Frankel, vice president, sales; Harold S. Remz, vice president, engineering; Charles F. Combs, treasurer; Barbara A. Jewett, secretary; and John P. Drinjak, manager of manufacturing.

New Grieve-Hendry Plant

Grieve-Hendry Co., Inc., manufacturer of industrial and laboratory ovens and furnaces has moved to new sales and production quarters at 1350 N. Elston Ave., Chicago 22, Illinois.

The move coincides with the firm's tenth anniversary and culminates a series of expansions for the rapidly growing manufacturer of heat processing equipment.

TITANIUM
FOR ANODIZING RACKS AND COMPONENTS
Sheets • Strips • Bars
Wire • Fasteners • Expanded Metal
Everything in Stock to Make Your Own Racks and Components.
IMMEDIATE DELIVERY
AMERICAN TITANIUM CORP.
3129 E. LARNED AVE. • DETROIT, MICH. • LO 8-3600
For more data circle 433 on Postpaid Card



Artist's conception of new building being built by Associated Testing Laboratories.

Bigger Home for Associated Testing Laboratories

Associated Testing Laboratories, Inc., environmental testing laboratory and manufacturer of environmental test equipment, will move into a new plant in Wayne, N. J., early this year.

The new 30,000-square-foot building, estimated to cost approximately $500,000, will be twice the size of the company's present facilities in Caldwell, New Jersey.

COMPANIES

NRC Authorizes Use of Vacuum Deposition Process for Cadmium

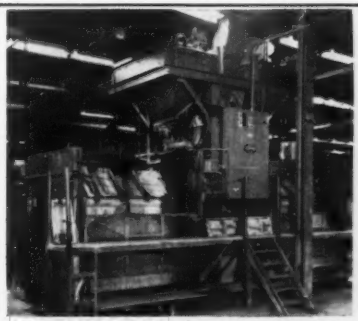
NRC Equipment Corporation has authorized two companies to use its process for deposition of thick cadmium films by vacuum metallizing.

Custom vacuum plating services are now available from Poly-Kote, Inc., North Attleboro, Mass., and Electro-Vac Division of Radio Core, Inc., Melrose Park, Ill., NRC reports. Both of these companies have been equipped and trained to use the process.

This process makes it possible to protect high-tensile steel parts against corrosion without danger of hydrogen embrittlement from the deposition process itself.

Typical products now being vacuum cadmium coated are aircraft and missile components — particularly high-strength bolts, landing gear parts and wing hardware—and high performance structural parts and springs for the automotive, marine and associated industries.

In the NRC process, parts are first rigorously cleaned and then mounted inside a specially equipped vacuum metallizer. After the metallizer has



FOR SALE *AT ORIGINAL LOCATION*

ALMCO "SUPERSHEEN" Model DBF800 Double Unit. A practically new abrasive finishing machine consisting of two 48" long x 60" diameter rubber lined, variable speed octagonal barrels; two vibrating screens for draining and feeding abrasive chips to bucket elevator, which recycles abrasive to two hoppers with swing spouts. Complete with automatic cycling controls and all motors, pumps, drives, etc. Can be seen under power. Complete specifications sent at your request.

WRITE — WIRE — PHONE

ACME EQUIPMENT CO., INC.

126 S. Clinton St., Chicago 6, Ill. ANdover 3-3430

For more data circle 434 on Postpaid Card

been evacuated, cadmium pellets are heated to their vaporization temperature. The cadmium vapors condense on the work pieces and the vaporization is continued until the desired thickness has been produced, which usually takes from 15 seconds to several minutes. Thicknesses of more than 0.006 inch have been obtained. For most applications, best corrosion resistance is obtained if the freshly coated parts are immersed in a chromate conversion solution.

Standards and tests for vacuum cadmium coating for military parts are describes in MIL-C-8837(ASG). Parts coated by the NRC process consistently meet or surpass the requirements of this specification, the process developer reports.

Many aircraft manufacturers have been reluctant to use parts vacuum plated with cadmium because of procurement difficulties.

Since these companies have been equipped to use the process, procurement problems have eased, NRC reports. Poly-Kote, for instance, has already earned a favorable reputation for prompt delivery.

Operation and Design of Bifurcator Fans Demonstrated with Working Scale Model

In the offices of plant engineers and consulting engineers across the country, a puff of cigarette smoke and a transparent, miniature model are being used to demonstrate the Bifurcator® Fan principle of fume removal. These working scale models enable sales engineers to explain the construction and operation of "plant size" Bifurcator Fans manufactured by the De-Bothezat Fans Division of American Machine and Metals, Inc., East Moline, Illinois.

Using a puff of smoke to simulate industrial fumes, the exhaust flow can be followed through the transparent plastic housing which completely by-

Small battery-powered model demonstrates Bifurcator fans produced by American Machine & Metals' Debothezat Fans Division

passes the motor chamber. A tiny, battery-powered motor turns the direct-drive fan wheel at approximately 4000 r.p.m.

This 3-dimensional sales tool enables plant engineers and consulting engineers to see and understand quickly such design features as the bifurcated housing, isolated motor chamber, and fan wheel and motor assembly.

Wyandotte Completes Atlanta Expansion

Wyandotte Chemicals Corporation has completed its Atlanta, Ga., plant expansion program.

Production of the complete line of J. B. Ford Division cleaning and sanitizing products has just begun, according to Ford Ballantyne, Jr., Wyandotte vice president and general manager of the J. B. Ford Division.

Products to be produced in Atlanta include those for dishwashing and building maintenance cleaning; for metal cleaning and metal finishing; for commercial laundries; for bottle washing and food processing.

Acoustica Associates, Inc. Acquires Ender-Monarch Corporation

Acoustica Associates, Inc. has acquired Ender-Monarch Corporation, Garfield, New Jersey, manufacturer of illumination equipment, according to Robert L. Rod, president of Acoustica, Long Island and California manufacturer of ultrasonic cleaning and gaging systems.

Wyandotte Holds Annual Conference

Wyandotte Chemicals' annual district sales managers' conference, was held recently at The Greenbrier, White Sulphur Springs, West Virginia. The conference was highlighted by awards ceremonies.

In attendance were J. B. Ford Division district sales managers from all 16 nationwide districts and Canada, and department heads from the division's home office at Wyandotte, Mich.

The award for "outstanding performance in 1959" was won by the Chicago District.

Duplex Nickel Plating: More and More

One result of the determined effort in the automotive industry to improve corrosion resistance of exterior bright parts has been growing use of the two-layer nickel plating process. Statistics recently released by Harshaw Chemical Company reveal that more than one million gallons of the company's Perflow-Perglow Duplex Nickel are now in operation. More than 300,000 gallons of this—one third of the total—first went into production between June 15 and September 15, 1959. All 1959-model domestic automobiles used some external parts plated with Harshaw Perflow-Perglow, with some models having as high as 90 per cent of their external parts duplex-nickel plated, the report continues.

Principal reason for the switch to its Duplex Nickel, the company says, is that recent accelerated tests and outdoor exposure tests have indicated that corrosion resistance of deposits produced from the Harshaw Perflow-Perglow baths is equal to, and fre-

Shown accepting the trophy on behalf of his men is Wyandotte district sales manager Charles Martin. Ford Ballantyne (right), general manager of the J. B. Ford Division and a Wyandotte Chemicals' vice president and director presents the trophy. Detroit and Seattle districts were close rivals.

The award for "The largest dollar sales increase in Industrial, Railroad and Aircraft Products in 1959" went to the Detroit District of Wyandotte Chemicals' J. B. Ford Division. Shown accepting the award from Department Manager P. N. Burkard is T. S. McCormick (left), Detroit district sales manager.

quently better than, buffed gray nickel.

Harshaw began to market the Perflow nickel plating process after its research labs found that a sulfur-free nickel improves corrosion resistance. Further research showed that use of a sulfur-free Perflow nickel deposit as a base coating, followed by a bright nickel deposit from a compatible bath, would give a still more corrosion-resistant nickel deposit.

Other advantages which have helped increase sales of Duplex Nickel, according to Harshaw, are that plating speeds are exceptionally high; chrome coverage is excellent; levelling characteristics are good; brightness is excellent; the baths tolerate impurities; adhesion is excellent; deposits are highly ductile at full brightness; control procedures are relatively simple; stress is controlled; and uniform protective plate can be produced on steel and zinc die castings.

Blaw-Knox Now Has More Durable Finish for Its Steel Grating

Blaw-Knox Company, Pittsburgh manufacturer of steel grating, has increased durability of its products with a finish the company calls "Ponbake."

The finish provides much better resistance to abrasion, corrosion, chemicals, and weathering, company officials say. In Weatherometer tests the finish withstood exposure equivalent to 3½ years in a salt-laden atmosphere comparable to that of Ft. Lauderdale, Fla. In a check for abrasion resistance the grating was bombarded with No. 6 heavy gravel for 40 minutes without exposing bare metal. Immersion in concentrated acids and alkalies for several hours and five per cent acids and alkalies for 72 hours failed to break through the tough coating.

The coating material is an epoxy-base product that is applied by flow coating and baked at 350 deg. F. Film thickness specified is one mil minimum.

Blaw-Knox worker checks machine which is flow coating steel grating with "Ponbake" finish that has measurably increased durability of company's products.

A combination cleaning and phosphate-coating treatment preceding painting improves adhesion.

American MonoRail Co. in New Location at Euclid, Ohio

American MonoRail Co. recently moved to its new location: 1111 E. 200th St., Euclid, Ohio. Earlier this year, the overhead-materials-handling-equipment manufacturer purchased the 130,000-square-feet plant and general offices plus 7½ acres of grounds.

American MonoRail was founded in 1926 to produce "labor saving devices." Today the company uses the successor term, "Materials Handling Equipment," to describe its products.

Neilson Chemical Company Appoints New Representative

The Neilson Chemical Company, Detroit, recently appointed Zak-Cowen and Associates, Inc., 7730 Carondelet, St. Louis, as sales and service representatives for Neilson products in Missouri, sections of Kansas, Illinois and Indiana.

Wheelabrator Acquires Lord Chemical Corp.

Wheelabrator Corporation, Mishawaka, Indiana, manufacturer of blast cleaning equipment, steel abrasives, and dust and fume control equipment, has acquired approximately 80 per cent of the controlling stock of Lord Chemical Corporation, York, Pa., according to James F. Connaughton, president of the Indiana firm.

As a majority-owned subsidiary of Wheelabrator Corporation, Lord Chemical will continue to operate in York, manufacturing its line of vibratory and barrel type finishing equipment, including compounds and media for cleaning, deburring, and precision finishing of metal parts.

Officers of the Lord Chemical Corporation include James F. Connaughton, chairman of the board; H. R. Stitely, president of Lord; J. A. Schmidt, secretary-treasurer of Wheelabrator, elected to vice president-treasurer of Lord; H. E. Smith, elected to secretary of Lord; and J. M. Wolf, controller at Wheelabrator, appointed controller of Lord.

The Board of Directors include James F. Connaughton, J. A. Schmidt, and H. R. Stitely.

Tousey Varnish Buys A. H. Climo

The outstanding stock of the A. H. Climo Company of Cleveland, Ohio has been purchased by the Tousey Varnish Company. Tousey, with plants in Chicago and East Moline, Illinois, will operate A. H. Climo as a wholly owned subsidiary.

The general industrial finish line produced by Climo will be continued and expanded. The new officers of Climo are Carl R. Heagstedt, president; Bradford W. Alcorn, executive vice president; Edward J. Masterson, vice president and treasurer and Harry D. Wright, secretary. The staff of Climo has been retained, with J. Theodore Speer serving as sales manager.

A Survey of Paint Application Methods

A series of articles on painting methods have been reprinted as a 64-page booklet.

Chapters in the report cover: 1) Use of the Spray Gun. 2) Conveyorized Spray Finishing; Automatic Spraying; Electrostatic Spray Painting. 3) Hot Spray; Airless Spraying; Steam Spray Painting; Spraying Catalyst Coatings. 4) Dipping Methods; Flow Coating. 5) Roller Coating; Tumble and Centrifugal Painting; Silk Screening; Aerosol Painting.

Reprints of *A Survey of Paint Application Methods* are available at 75 cents a copy. Write to PRODUCTS FINISHING, 431 Main St., Cincinnati 2, Ohio.

Edward J. Masterson will be resident head of A. H. Climo.

New West Coast Company Makes Spray Masks, Engineers Spraying Systems

Decorative Engineering and Supply, Inc., 17000 S. Western Ave., Gardena, Calif., has purchased Precision Spray Mask Co. The company manufactures electroformed spray masks and fixtures, provides engineering service for spraying systems, repairs production spray guns and equipment. In addition, the firm distributes DeVilbiss spray guns and equipment.

President of the new firm is Milton T. Schimmel of Gardena, Calif. His background includes considerable experience with companies engaged in vacuum metallizing, the manufacture of spray masks and automatic spray equipment, and the manufacture and application of paints and coatings. Mr. Schimmel is a member of both the Society of Plastics Engineers, and the

American Society of Tool Engineers. His educational background includes both mechanical and electrical engineering.

Decorative Engineering and Supply, Inc., is closely affiliated with Bee Chemical Company, Chicago manufacturer of specialized paints. Chairman of the board is M. A. Self, president of Bee.

Koch Appoints Michigan Representative

Keith M. Strong

George Koch Sons, Inc., appointed Strong Engineering, Inc., to represent the company's Industrial Division in Michigan and part of Ohio.

Keith M. Strong is president of the company, and Allen B. Repp is general manager.

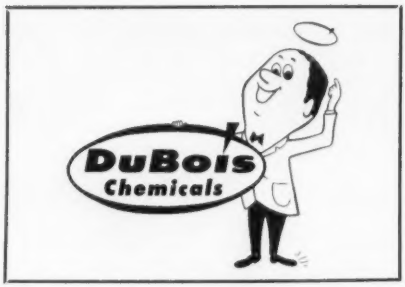
Strong's warehouse and office is at 2211 Monroe St., Dearborn, Mich.

Consolidated Vacuum Opens Offices in Philadelphia, Palo Alto

Consolidated Vacuum Corp., wholly owned subsidiary of Consolidated Electrodynamics Corp., has established regional sales and service offices in Philadelphia and Palo Alto, Calif.

William C. Cameron will manage the eastern regional office, which will have jurisdiction over all states east of the Mississippi River. Robert O. Johnson will manage the western regional office, which will be responsible for the Pacific Coast states, the Southwest, and the Rocky Mountain states.

These are the first regional offices to be opened by Consolidated Vacuum. Ten district offices were established in June of last year, when CVC set up a separate marketing organization.



A new trade character named "Mr. Du" will be used by The DuBois Co., Inc., nationally known cleaning compound manufacturer, as part of its 40th anniversary promotions in 1960 and thereafter. "Mr. Du" will be used in the company's advertising and promotions to represent its sales force of over 500 men throughout the U. S., Canada and parts of Latin America. "Mr. Du's" halo repeats the oval shape and accent mark of the company's recently adopted trade mark.

NEW POSITIONS

Industrial Filter & Pump Mfg. Co. has named **C. M. Weege** as regional sales manager and **Frank M. Macioce** as sales engineer.

C. M. Weege

Frank M. Macioce

Carborundum Metals Company has announced the following appointments: **Lyle B. Hoskins** to manager of manufacturing for both the Akron, New York and Parkersburg, West Virginia plants; **Elvin W. Smith** to process engineer at the Parkersburg plant.

Enthone, Inc. has promoted **Kenneth D. Miller** to chief engineer; **Avery B. Smith** to supervisor of equipment operations; **Joel R. Field** to technical representative-racks; and **George S. Rudoff** to shop foreman.

George S. Rudoff

Kenneth D. Miller

R. H. Binkerd appointed general sales manager of **NRC Equipment Corporation,** Newton, Mass. producer of high-vacuum equipment and accessories, and a manufacturing subsidiary of National Research Corporation.

R. H. Binkerd

Hilton M. Smith, Jr.

Joel R. Field

Avery B. Smith

Belke Manufacturing Company appointed **Hilton M. Smith, Jr.,** as sales representative for the Belke line of plating equipment and supplies in Ohio, Southern Indiana, Kentucky and Tennessee.

Several changes in the sales organization of **Minnesota Mining and Manufacturing Company's** coated abrasives and related products division have been announced by R. L. Ackerberg, recently named as division general sales and marketing manager.

F. M. Metcalfe has been named division sales manager and **C. L. Murphy** has been named division marketing manager. **W. E. Marsden** will be eastern region sales manager for the division.

The Art of Color Matching

A 20-page reprint discusses the factors that enter into color matching in non-technical terms that the layman can understand.

Illustrated in full color, this useful booklet contains basic information as well as practical data on color. Includes discussion of physics of color; chemistry of color; behavior of light and colorant; physiology of colors; psychology of color; effect of substrate, size of specimen, age of observer, eye fatigue.

Copies available from PRODUCTS FINISHING, 431 Main St., Cincinnati 2, Ohio. Price, 35 cents.

Gerald D. Minnick appointed director of the new Semi-Conductor Equipment Division of **Conforming Matrix Corporation,** Toledo.

Leo McHue, general manager of Conforming Matrix, promoted to vice-president.

Leo McHue

Gerald D. Minnick

Allen D. Russell appointed organic coatings sales engineer for Organic Coatings Division, **Metal & Thermit Corporation.** Mr. Russell will be assigned to national accounts in the home appliance industry, and will be headquartered in Louisville, Kentucky.

Allen D. Russell

T. A. Rohlfsen

Sel-Rex Corporation has announced two appointments to important posts in its newly acquired subsidiary, **The Meaker Company. Jerome L. Ross,** sales engineer with Sel-Rex since 1949, will be assistant general manager of Meaker. **Peter Arnold,** formerly development engineer for Hanson-Van Winkle-Munning Co., will be the new eastern sales manager for Meaker-built equipment.

Jerome L. Ross

Peter Arnold

T. A. Rohlfsen has been appointed manager of the South Pacific Coast Division of **Oakite Products, Inc.** Mr. Rohlfsen succeeds **J. C. Leonard,** who is retiring after 35 years of service with the company.

★ ★ ★

Ralph N. Hosey rejoined the **Drying Systems Division of Thor Power Tool Company** as New York representative. Mr. Hosey previously spent six years as an engineer in the Chicago headquarters of Drying Systems before accepting a position as New York district sales manager for a manufacturer of heating and power plant equipment.

★ ★ ★

Solvay Process Division of **Allied Chemical Corporation** appointed **Jerome L. Hochenedel** assistant manager of Solvay's Houston, Texas sales branch. **E. Kenneth Leins** moves from the Division's Technical Service Department at Syracuse, N.Y. to its New Orleans, Louisiana, sales branch. He has been assigned to the Baton Rouge sales territory.

47th A. E. S. ANNUAL CONVENTION,
Hotel Statler, Los Angeles, California
July 24-28, 1960

Hubbard-Hall Chemical Company, Waterbury, Conn., promoted **Stanley P. Wilmot** to the newly-created position of operations manager-Waterbury Plants. In his new position, Mr. Wilmot will co-ordinate the activities of all non-office personnel and have over-all supervision of warehousing, manufacturing, delivery, and maintenance activities in Hubbard-Hall's Waterbury plants.

★ ★ ★

Clayton S. Shoemaker, for a number of years president of the **Dow Chemical Company** export companies, has retired from full-time business activities with the company.

Mr. Shoemaker will continue to devote about 25 per cent of his time to Dow international activities, however, specifically in developing new investment opportunities for Dow in Central and South America during the coming year, according to C. B. Branch, president of Dow Chemical International Limited S. A.

★ ★ ★

Promotions in the **Curtis Machine Division of The Carborundum Company** include **Richard D. Rutt** of Wilson, New York, formerly manager of the division's technical branch to production manager; **Paul W. Joy,** Grand Island, New York, from assistant manager to manager of the technical branch; **Adolph C. Carlson,** Grand Island, New York, supervising engineer, promoted to manager of the machine-design department; **William C. Keyes** of North Tonawanda, New York, from design engineer to senior design engineer, and **Francis M. Owrey** of Niagara Falls, promoted from senior draftsman to senior quality control engineer.

★ ★ ★

Arthur P. Schulze joined public relations department of **Hooker Chemical Corporation,** Niagara Falls, N. Y. Mr. Schulze comes to Hooker from Diamond Alkali Company.

★ ★ ★

Aldon M. Asherman appointed manager of market research of the Chemical and Metallurgical Division of **Sylvania Electric Products, Inc.** Mr. Asherman has been advertising manager of Sylvania's Chemical and Metallurgical, Parts, and Electronic Systems Divisions.

★ ★ ★

The U. S. Stoneware Company appointed **Shelby A. Davis** sales manager of its Coatings Division and also of the Coatings Division of its affiliated company, Chamberlain Engineering Corp. In his new position Mr. Davis will direct the sales of the two firms' lines of corrosion-resistant paints, plastisols and dipped items.

Shelby A. Davis

James L. Donahue

Catalytic Combustion Corporation appointed **James L. Donahue** general manager of its sales department.

★ ★ ★

Wesley F. Payne appointed chief field engineer in the Tri-Matic Oscillating Abrasive Belt Grinder Division of **Sales Service Mfg. Co.**

The Chicago Rubber Co., Waukegan, Illinois, recently appointed **Lawrence Almeida** as plant manager and chemist. Mr. Almeida comes to Chicago Rubber with an extensive background in the molding and extruding of rubber parts and products. He will coordinate and manage production of Cosmo-Rubber Contact Wheels and Rubber Covered Rolls.

Lawrence Almeida

John F. Claydon

John F. Claydon, general manager of the Coated Abrasives Division of **The Carborundum Company,** elected vice president of the company.

★ ★ ★

Pennsalt Chemicals Corporation created the new office of vice-president of marketing, appointed **Albert H. Clem** to the post.

Replacing Mr. Clem as general manager of the Chemical Specialties Division is **George R. Lawson,** formerly director of marketing for Pennsalt's Industrial Chemicals Division.

★ ★ ★

Martin F. Wilkerson promoted from branch manager of **Diamond Alkali Company's** Southwest District Sales Office, to sales manager, Chlorinated Products Division, Cleveland, Ohio.

Robert L. Walker, salesman at Diamond's Southwest District Sales Office promoted to branch manager, replacing Mr. Wilkerson.

Joseph R. Eisele has been promoted to district sales manager by **Enthone, Inc.,** New Haven, Connecticut subsidiary of American Smelting and Refining Company. Mr. Eisele will manage Enthone's newly created Middle Atlantic Sales Territory and will direct the activities of three sales engineers. The new territory will include New Jersey, eastern Pennsylvania, Delaware, Maryland, the District of Columbia and Virginia.

Joseph R. Eisele

Joe H. Shockcor

Joe H. Shockcor and **Hugh V. McGuire** will assist Mr. Eisele as district sales engineers. Mr. Shockcor will handle east central Pennsylvania and the southern part of the territory. Mr. McGuire serves northern New Jersey.

Hugh V. McGuire

★ ★ ★

Amco Division of American Metal Climax, Inc., appointed **John J. Lennon, Richard E. Wolff** and **Dr. Christian H. Aall** vice presidents and **A. E. Lee, Jr.** technical director.

★ ★ ★

Northwest Chemical Co. appointed **Paul V. Dugan** to represent the company in southwestern Ohio.

Six new appointments have been announced by the Sales Department of **Solvay Process Division, Allied Chemical Corporation.**

Fred P. Boehm and **Charles E. Varn** have been appointed assistant directors of sales.

Robert E. Clagett succeeds Mr. Boehm as Pittsburgh Sales Branch manager and **G. Richard Barclay** replaces Mr. Varn as manager of the New Orleans sales branch.

In addition, **Jerome L. Hochenedel** has been appointed manager of Solvay's Houston, Texas sales branch, succeeding **S. O. Taylor,** who is retiring after 33 years of service with the company.

Richard A. Marshall is now manager of the Organic Chemicals Section, a post formerly held by Mr. Barclay.

★ ★ ★

A. J. Fisher, Jr. has been elected executive vice president of **Metal & Thermit Corporation.**

Wayne L. Niedens

A. J. Fisher, Jr.

Pioneer Rubber Co. appointed **Wayne L. Niedens** sales representative for the company's Texas subsidiary. Mr. Niedens' headquarters will be New Orleans. His territory: Arkansas, Louisiana, Mississippi, western Tennessee, Houston, Texas.

★ ★ ★

DeVilbiss Company named **T. Kenneth McGuire** vice president. Mr. McGuire will continue to direct the activities of a subsidiary, DeVilbiss Metal Fabricators Co. He is vice president and general manager of the subsidiary, which manufactures ovens, dip coaters, spray booths, flow coaters, dust collectors, air replacement systems and other equipment.

Thomas N. Urquhart

T. Kenneth McGuire

Thomas N. Urquhart named director of product evaluation for the **Udylite Corporation.** In the newly created office, Mr. Urquhart will work with product engineers, cost accountants and marketing personnel to evaluate products and determine costs, production procedures and new markets for Udylite's electroplating machines, processes and rectifiers.

Mr. Urquhart formerly was chief estimator for the company.

★ ★ ★

Amchem Products, Inc. transferred **Robert W. Taylor** to Kansas City, Missouri, as the technical sales representative for the Metalworking Chemicals Division. Mr. Taylor will be attached to Amchem's Central District Office in St. Joseph, Missouri. His new territory will include Missouri, Kansas, Colorado and Nebraska.

★ ★ ★

Chainveyor Corporation, Los Angeles, appointed **Eugene R. Meinecke** chief design engineer. For the past 13 years Mr. Meinecke was chief estimator for Stephens-Adamson Conveyor Company.

Magnus Chemical Company, Inc., has announced the election of three new directors: **Richard P. Edmonds,** Springfield, N. J.; **Leon Salz,** Mountainside, N. J. and **P. Edward Gabelmann,** Scotch Plains, N. J.

Directors of the **E. W. Buschman Company,** Cincinnati, have elected **Rudy B. Vogt** president, **Victor W. Sicking** executive vice-president and **Norman J. Tillar** secretary and treasurer of the company.

Leon Salz

Richard P. Edmonds

Rudy B. Vogt

Norman J. Tillar

P. Edw. Gabelmann

Richard P. Villwock

Howard J. Mather

Victor W. Sicking

Richard P. Villwock appointed as research engineer by **Michigan Abrasive Company.**

★ ★ ★

Joseph M. Devine appointed New England sales representative for automatic viscosity control equipment made by **Brookfield Engineering Laboratories,** Stoughton, Massachusetts. Mr. Devine's territory will include all of New England with the exception of Fairfield County, Connecticut.

Pittsburgh Plate Glass Company appointed a new divisional vice president for the paint division: **Howard J. Mather,** now vice president of industrial sales for the paint division.

★ ★ ★

Parker Rust Proof Company transferred **Joseph VanCooley** to Chicago as technical representative in central Illinois.

Newly transferred to Marion, **Ken**

Joseph VanCooley

Wallace Howells

James will be Parker's technical representative in northwestern Ohio.

Wallace Howells has been appointed to the Parker staff in the Minnesota area.

MEETINGS

Philadelphia Branch A.E.S. Celebrates 50th Anniversary, Hosts Seventh Interim Meeting

Philadelphia's Ben Franklin Hotel will resound with talk of tanks and anodes on February 19 and 20 as the Philadelphia Branch A.E.S. celebrates its fiftieth anniversary and the delegates convene for the Seventh Interim Meeting of the society's national committee. James E. Cogan, Jr., is general chairman of the committee planning this meeting.

Two technical sessions will be held, the first at 8:00 P.M. on Friday, February 19, the second on Saturday, February 20 at 10:00 A.M. Dr. Samuel Heiman and Joseph W. Berenato, Jr., are in charge of planning the educational program.

Papers to be presented at the Friday evening session are as follows:

The Search for the Causes and Remedies of Corrosion of Nickel-Chromium Coatings, by Dr. W. Andrew Wesley, first vice president of the A.E.S. and manager of the research laboratory, International Nickel Company, Inc., Bayonne, New Jersey.

Cadmium and Zinc Troubles, by John B. Winters, Incar, Inc., Cleveland, Ohio.

Papers to be presented at the Saturday morning session are as follows:

Hard Anodizing, by Dr. Harold J. Wiesner, Research Chemist, Bendix Products Div., Bendix Aviation Corporation, South Bend, Indiana.

Anodizing and Chemical Finishing of Aluminum, by Russell V. Vanden Berg, Aluminum Company of America, New Kensington, Pa.

Plating on Aluminum, by William K. Murray, manager of marketing, Enthone, Inc., New Haven, Conn.

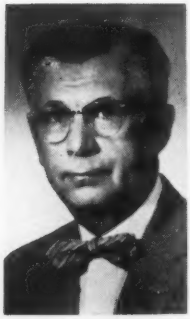
Cocktail party, banquet and dance on Saturday evening will complete the program.

Dayton-Branch A. E. S. Annual Meeting

The 14th Annual Educational Session and Dinner Dance of the Dayton Branch of the American Electroplaters' Society will be held on Saturday, March 5, 1960, at the Dayton Biltmore Hotel. Byron Bowman is general chairman. He will be assisted by Larry Hadlock, co-chairman.

The Educational Session, under the direction of Robert Fisher, educational chairman, will begin promptly at 1:00 P.M., with Ralph D. Wysong, Supreme Society president, as honorary chairman. The speakers and their topics are as follows: Christopher Marzano, chief chemist, Amphenol-Borg Electronics Corporation, *How to Plate Difficult Metals;* B. F. Lewis, technical director, Northwest Chemical Co., *Modern Metal Cleaning*; and Walter L. Pinner, manager plating service, McGean Chemical Co., *Preparation of Steel for Electroplating and Copper-Nickel-Chromium Coatings.*

Jack V. Baker, hotel chairman, has announced that the doors to the ballroom will open at 6:15, with dinner scheduled for 6:45 P.M., followed by



Byron Bowman

Ralph D. Wysong

George J. Hetz

Tony Stabile

floor show and dance. The floor show has been arranged by R. L. Ruleff, entertainment chairman. Favors for the ladies have been selected by John Myers, favors chairman.

Ticket sale is under the direction of Duanne Prosser and his committee and Walter Anderson is program and advertising chairman. Publicity chairman is L. A. Critchfield.

Los Angeles Committee Completes Tentative Plans for July A.E.S. Convention

The committee from the Los Angeles Branch of the American Electroplaters' Society, planning this year's convention, has completed its tentative plans for the four-day annual meeting, which will be held at the Statler-Hilton Hotel, July 24-28.

In charge of the planning are Tony Stabile, Associated Plating Co., general chairman, and George J. Hetz, C & W Metal Finishing, co-chairman. Earl W. Arnold, L. H. Butcher Co., is in charge of the educational program.

In addition to a fine educational program (papers listed on page 155 of the January issue of PRODUCTS FINISHING), the Los Angeles Committee has planned a busy week of luncheons, teas, sightseeing and fun for the ladies who attend the convention. Ladies Program Chairman is Mrs. Glenwood J. Beckwith. And for the children who come to the West Coast with their parents, a program including Disneyland, motion picture studios, other attractions planned to appeal to the younger set. The small fry will be directed by Eugene C. Bosl, Alert Supply Co.

Earl W. Arnold

SOCIETIES

Springfield Branch Sponsors Robert Girard for Third V.P. of A.E.S.

The Springfield Branch of the American Electroplaters' Society will sponsor Robert J. Girard's nomination for third vice president of the A.E.S. at elections to be held during the Annual Convention.

Mr. Girard is a

(continued)

Robert J. Girard

member of the Springfield Branch, has been a delegate from that branch for the past five years. He is a past president of the branch, has conducted a course in electroplating, will deliver a paper at the 1960 A.E.S. Convention, holds a patent on an electroless nickel process.

Candidate Girard's present position is foreman of Metal Finishing Shops, Armory Operations Div., Springfield Armory, Springfield, Mass. His background includes partial ownership of a job shop and research and development work in hard chromium plating techniques for gun barrels. He attended Syracuse University and evening courses at the University of Massachusetts, North Eastern University.

NECROLOGY

John C. Pangborn

John C. Pangborn, 75, co-founder of Pangborn Corporation, died at his home in Hagerstown, Md. on Christmas Eve.

Along with his brother Thomas W. Pangborn, he founded the blast-cleaning and dust-control equipment manufacturing concern in New York City in 1904. The company and its management moved to Hagerstown in 1912. For many years he was active in sales, becoming widely acquainted in American industry. In recent years he has served as vice chairman of the board of directors and of the Pangborn Foundation.

MEETINGS of INTEREST to FINISHERS

Feb. 19-20. Seventh Interim Meeting, A.E.S., and Golden Anniversary Educational Meeting and Banquet, Philadelphia Branch, Ben Franklin Hotel, Philadelphia, Pa.

Mar. 5. 14th Annual Educational Session and Dinner Dance, Dayton Branch, A.E.S., Dayton Biltmore Hotel, Dayton, Ohio.

aluminum can be made to last [illegible] coat of clear lacquer three one-[illegible] thousandths of an inch thick to

LACQUER AIDS ALUMINUM

N.P.V.L.A.

No news to us! AGATEEN 8-A CLEAR has been doing it for years.

Famous for Adhesion Durability and Mileage

Agate Lacquer Mfg. Co., Inc.
Serving Industry Since 1927
11-13 43rd Road
Long Island City, N. Y.
Stillwell 4-0660-1

AGATEEN
THE LAST WORD IN QUALITY

For more data circle 435 on Postpaid Card

Mar. 14-18. 16th Annual Conference and 1960 Corrosion Show, National Association of Corrosion Engineers, Dallas, Texas.

Mar. 26. First Arizona Metal Finishing Symposium and Industrial Exhibition. Sponsored by Phoenix Branch, A.E.S., Arizona State University, Tempe, Arizona.

Apr. 23. Sixth Annual Tri-State Meeting, A.E.S., Cincinnati Host Branch, Sheraton-Gibson Hotel, Cincinnati, Ohio.

Apr. 23. 21st Annual New England Regional Meeting, Hotel Statler, Hartford, Conn.

Apr. 29-30. Sixth Empire State Regional Meeting, Southern Tier Host Branch, Mark Twain Hotel, Elmira, New York.

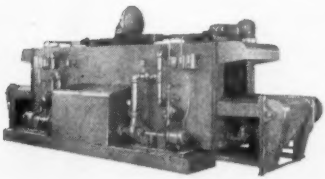
May 1-5. Spring Meeting, The Electrochemical Society, LaSalle Hotel, Chicago, Ill.

July 24-28. 47th Annual Convention, A.E.S. (National), Hotel Statler, Los Angeles, Calif.

The Finishing Touch

"I meant to tell you—it starts with a piercing screech—"

"BUT, FELMLEY, A BLAKESLEE IS MORE ECONOMICAL!"



BLAKESLEE

VAPOR DEGREASERS
METAL PARTS WASHERS

For Faster, More Thorough, More Economical Cleaning.

Whatever your requirements—conveyorized or open tank—Blakeslee designs and builds the equipment you need to do a more complete, more economical job. Nearly all Blakeslee Degreasers and Washers are available with Branson "Sonogen" Ultrasonic generators and transducers to bring you the outstanding service and know-how of the two top leaders in the industry. For the equipment best suited to your particular needs, discuss your problem with a Blakeslee representative. He is completely familiar with all types of parts cleaning operations and will make sound, profitable recommendations to you.

Why not have your Blakeslee man make a free cost analysis of your cleaning operations.

Write for complete information on Blakeslee Cleaning Equipment and BLACOSOLV® Degreasing Solvent.The Solvent with the original neutral stabilizers.

G. S. BLAKESLEE
New York • Los Angeles • Toronto

Department 104-V
1844 SO. LARAMIE AVE.
CHICAGO 50, ILLINOIS

For more data circle 436 on Postpaid Card

FEBRUARY ADVERTISERS' INDEX

Acme Equipment Co., Inc. 175
Agate Lacquer Mfg. Co., Inc. 189
Allied Finishing Specialties Co. 120
Allied Research Products, Inc. 117
Amercoat Corp. 63
American Metal Climax, Inc., Amco Div. 61
American Smelting & Refining Co., Federated Metals Div. 45
American Titanium Corp. 174
Apex Alkali Products Co. 64
Apothecaries Hall Div., Hubbard-Hall Chem. Co. ..97
Archer-Daniels-Midland Co. 80, 81
Atlas Powder Co. 12

Baird Machine Co. 150
Baron Industries 160
Bee Chemical Co., Logo Div. 114
Belke Mfg. Co. 125
Better Finishes & Coatings, Inc. 47
Blakeslee & Co., G. S. 191
Bond Chemical Products Co. 148
Brady Co., W. H. 110
By-Buk Co. 158

Carbic-Hoechst Corp. 41
Churchill Co., Inc., Geo. R. 6
Cincinnati Cleaning & Finishing Machinery Co. ....Second Cover
Cohn Mfg. Co., Inc., Sigmund 116
Commercial Filters Corp. 151
Conforming Matrix Corp. 55
Consolidated Vacuum Corp. 111
Conversion Chemical Corp. 135
Cosden Paint Co. 85
Cowles Chemical Co. 22
Crescent Bronze Powder Co. 126

D & W Tool & Findings, Inc. 146
Day & Co., James B. 82
Delavan Mfg. Co. 42
Despatch Oven Co. 112, 113
Detrex Chemical Industries, Inc. 75
Detro Mfg. & Sales Co., Inc. 154
DeVilbiss Co. 100, 101
Dresser Electric Co. 122
DuPont de Nemours & Co., Inc., E. I. 86, 87
Duralac Chemical Corp. 13
Dyna-Empire, Inc. 91
Dytex Chemical Co. 140

Eaton Chemical & Dyestuff Co. 71
Electro-Glo Co. 142
Enthone, Inc. 73
Exolon Co. 65

Federated Metals Div., American Smelting & Refining Co. 45
Flexo Products, Inc. 74
Formax Mfg. Corp. 102
Fortune Industries, Inc. 156

Gardner Laboratory, Inc. 170
Gasway Corp. 143
Grav-I-Flo Corp. 103

Hammond Machinery Builders, Inc. 7
Hanson-Van Winkle-Munning Co. 10, 11, 92, 93, 137
Harper Buffing Machine Co. 121
Harshaw Chemical Co. 20, 21
Holland & Sons, Inc., J. 130
Hubbard-Hall Chemical Co., Apothecaries Hall Div. 97
Hull & Co., Inc., R. O. 67

Industrial Filter & Pump Mfg. Co. 16, 17
Industrial Ovens, Inc. 109

Jelco Finishing Equipment Corp. 104

Kelite Corp. 129
Kirk & Blum Mfg. Co. 14
Koch Sons, Inc., Geo. 163
Kocour Co. 78
Kramer Co., H. W. 94
Kushner Electroplating School 164

Lanly Co. 141
Lasalco, Inc. 43
LeVita Industries, Inc. 169
Lowe Bros. Co. 76, 77

MacDermid, Inc. ....Third Cover
Magnus Chemical Co., Inc. 145
Magnuson Products Corp. 134
Mahon Co., R. C. 48, 49
Metal & Thermit Corp. 106, 107
Metal Finish, Inc. 136
Metaplast Process, Inc. 132
Metals & Controls Div., Texas Instruments, Inc. ..149
Michigan Oven Co. 4
Midland Industrial Finishes Co. 124
Morse Mfg. Co., Inc. 166

Nikolas & Co., Inc., G. J. 159
Nordson Corp. 133
Northwest Chemical Co. 18
Norton Co. 2
Nuodex Products Co. 95

Oakite Products, Inc. 1

Packer Machine Co. 139
Pennsalt Chemicals Corp. 79
Phillips Mfg. Co. 157

Ramco Equipment Corp., Div. Randall Mfg. Co. ..98
Rampe Mfg. Co. 123
Ransburg Electro-Coating Corp. 105
Ransohoff/Roto-Finish 83
Research Products Corp. 96, 144
Reynolds Chemical Products Co. 3
Rockwell Co., W. S. 90
Roto-Finish/Ransohoff 147

Sandoz, Inc. 57
Sarco Co., Inc. 131
Sel-Rex Corp. 127
Sethco Mfg. Co. 146
Seymour Mfg. Co. 108
Simplicity Engineering Co. 88
Sly Mfg. Co., W. W. 153
Solventol Chemical Products, Inc. 138
Spee-Flo Co. 8, 9
Spra-Con Co. 128
Spraying Systems Co. 66
Stanley Chemical Co. 58, 59
Steinen Mfg. Co., Wm. 161
Stevens, Inc., Frederic B. 69
Sulphur Products Co., Inc. 168
Sundstrand Corp. 155
Sylvania Electric Products, Inc. 53

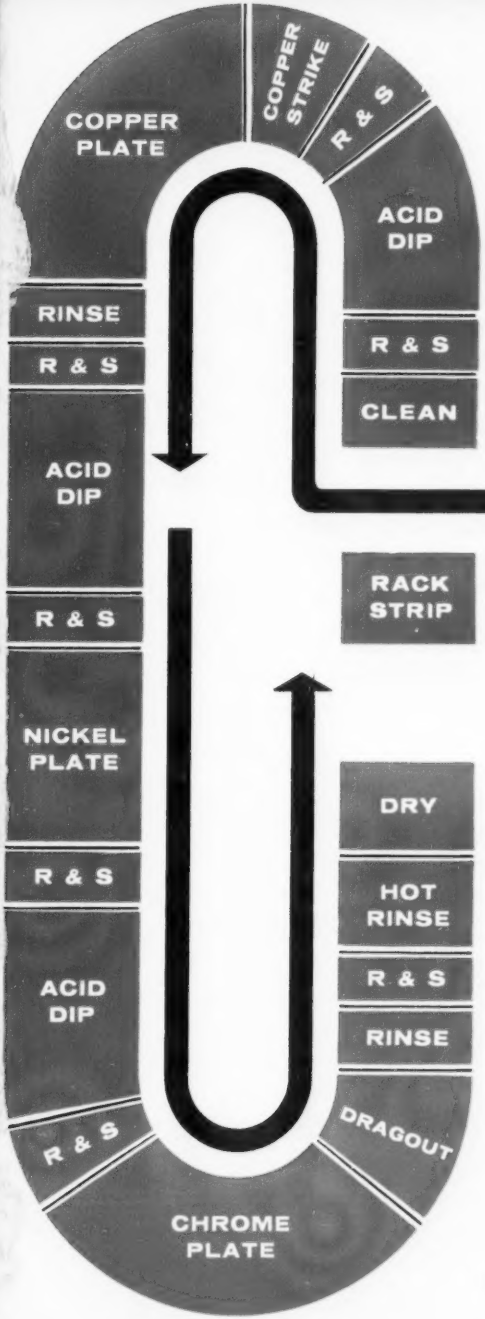
Technic, Inc. 51
Tenax Finishing Products Co. 119
Texas Instruments, Inc., Metals & Controls Div. ..149
Ti-Co Industries, Inc. 162
True Brite Chemical Products Co. 158
Turco Products, Inc. ....Fourth Cover

Udylite Corp. 15, 54, 99
Unit Process Assemblies, Inc. 152
U. S. Stoneware Co. 19
Universal Tumbling Supply Co. 171
Univertical Corp. 89

Varnish Products Co. 156

Worklon, Inc. 84
Wyandotte Chemicals Corp. 115

Young Bros. Co. 118



How many "COMPLETE CYCLE" experts do you know?

MacDermid sends only "Complete Cycle" experts to do the complete job!

You never know where trouble will start in a metal finishing line. That's why there's no room in today's fast-moving metal finishing field for narrow specialists. You need men who can talk cleaning and plating and conversion coating and anodizing with equal skill . . . men who can make recommendations that will lead to a solution for your total problem.

Every MacDermid Man draws from a wide variety of metal finishing products; he is equipped, through background and training, to service all or any part of a complete cycle. There are no specialists at MacDermid . . . just metal finishing experts ready to put their know-how to work to help solve your toughest metal finishing problems.

MacDermid
INCORPORATED
. . . right to the Finish!
WATERBURY, CONNECTICUT
Ferndale, Mich. • Torrance, Calif

METAL CLEANERS • COPPER PLATING PROCESSES • DRY ACID REPLACEMENT SALTS
MACROMATE CONVERSION COATINGS • ELECTRO AND CHEMICAL POLISHES
BURNISHING AND OTHER METAL FINISHING COMPOUNDS

COMPLETE SUPPLIERS TO THE METAL FINISHING INDUSTRY

For more data circle 302 on Postpaid Card

Only new

TURCOAT
LOW TEMP
PHOSPHATING

gives you up to 200 mg/sq. ft. of zinc phosphate coating in 2 short minutes at 95° F.

The Turcoat low temperature phosphating process provides permanent paint adhesion when used at an economical, easy-to-maintain temperature of 95° F. This temperature is *lower* than that required by other "cold" phosphating processes. It is up to 75° *lower* than temperatures required by conventional phosphating processes. You save up to 75% in steam, water, electricity and down-time costs alone!

As a base for paint, the Turcoat low temp phosphating process provides a uniformly smooth coating of up to 200 mg/sq. ft. in two minutes at 95°F. **As a base for corrosion prevention,** it provides an 1100 mg/sq. ft. coating in just eight minutes at 95° F.

Turco has waited to announce low temperature phosphating until it was thoroughly perfected and proven, through exhaustive field testing, to be the very best. For this reason, you'll find that with this new process, just as with Turco's hundreds of other cleaning and chemical processes, you are assured of trouble-free operation, ease of control, and dedicated technical service . . . anytime, anywhere! Write today for the full story of Turcoat low temperature phosphating, along with Turco's phosphating reference chart. There's no cost, no obligation.

TURCO PRODUCTS, INC.
Chemical Processing Compounds
24600 South Main Street, Wilmington, California
FACTORIES: Newark, Chicago, Houston, Los Angeles, London, Rotterdam, Sydney, Mexico City, Paris, Hamburg, Montreal, Manila, Naha (Okinawa)
Manufactured in Canada by B. W. Deane & Co., Montreal
Offices in all Principal Cities

TURCO

TURCO PRODUCTS, INC.
24600 South Main Street, Wilmington, California

Please send full details on Turco's new low temperature phosphating process and Turco's phosphating reference chart, without cost or obligation.

NAME _____ TITLE (OR DEPT.) _____

FIRM _____

ADDRESS _____ PF

For more data circle 303 on Postpaid Card